

Desert

DECEMBER, 1955 . . . 35 Cents





Luminarios outline the O. E. Hopler, Jr., residence at Albuquerque.

Land of the Luminarios...

A supply of sand, a paper sack and a lighted candle—that is all it takes to make a luminario. In New Mexico and elsewhere in the Southwest this custom of ancient origin is finding ever increasing popularity. More and more candles are glowing at night—to celebrate weddings, religious festivals, homecomings and, of course, Christmas time.

By LAVON TEETER
Photograph by C. E. Redman

"THEY'RE LUMINARIOS!"

You hear this only in the Southwest and especially in New Mexico, where natives and tourists alike exclaim at the far reaching modern adaptation of an old custom. Luminario lighting, because of its beauty and appeal, is being adopted and developed by both the Spanish and Anglo population of this southwestern state.

Luminarios are a unique means of evening decoration used to highlight the celebration of festive occasions—religious days, fiestas, rodeos, weddings, parties, carnivals, homecomings, the friendly barbecue in the family patio and, of course, the Christmas season. The glimmer of burning luminarios extend a shining welcome to "The Land of Enchantment."

All this unusual glory spreads from a paper sack, some ordinary sand, and a candle. The top of a No. 5 paper bag is folded down like a cuff about two inches to strengthen the form and balance. The bag is half filled with sand for weight against wind, to hold upright an inserted candle, and to snuff

out the light when the candle burns down. The bags are placed two feet apart all around flat pueblo roofs, or on top of sloping walls, or along the footpaths of homes, churches, parks or public buildings. When lighted—hundreds, thousands, millions of them—they create a fairyland of magic in the desert.

Whether you travel on the main highways stopping at the larger cities such as Albuquerque, Santa Fe, Roswell, or wander up into the small towns and villages of the Sandia and Jemez Mountains, or follow the path of the Rio Grande River, you will be in luminario country. More recently the luminario custom has been extended to Tucson and other Southwestern cities where a considerable population of Mexicans dwells.

Pine knots have been used from early times to light caves and to furnish fire for religious purposes. It is not definitely known who introduced the practice of using paper sacks with lighted candles. Joseph A. Bursey, director of the New Mexico State Tourist Bureau, says that technically they should be called *farolitos*, as distinguished from the pitch-pine bonfires which are properly called luminarios.

Most New Mexicans today, however, do not make a distinction, and simply call their unusual decorating idea "luminario lighting."

Nor is there any certainty as to the exact history of the luminario. Some claim that the luminario lights were first set out symbolically to guide the shepherds to the manger; others say that the lights represent the star of Bethlehem; still others suggest that they had a historical significance at the time of the American Occupation. Some, who follow the old tradition, use only 12 luminarios, one for each of the apostles. Others use 9, representing the nine principals at the nativity. Most people, however, use as many as necessary to carry out their ideas of design and outline.

Whatever its origin and history, luminario lighting is a distinctive, colorful, early custom that New Mexicans are finding decidedly worth preserving. Civic leagues, garden clubs, college organizations and interested individuals encourage it with gifts and prizes.

The Southwest's mild climate and arid landscaping make a perfect background for the glow of lighted candles that glimmer more extensively each year. The shining amber lights are always a sign of a gracious invitation to something special and the spectator, stranger or native instinctively responds to their charming beauty with a heart-felt *muchas gracias*—thanks for the luminarios of the desert dwellers.

DESERT CALENDAR

- Late November or early December—Zuni Pueblo Shalako Ceremonies and House Dances.
- Dec. 2 — Los Vigilantes Christmas Parade, El Centro, California.
- Dec. 2 — Annual Christmas parade, Barstow, California.
- Dec. 2-3—8th Annual Arizona Aviation Conference, Tucson, Arizona.
- Dec. 2-4—Feast of St. Francis Xavier Mission, Tucson, Arizona.
- Dec. 3 — Palm Springs, California, Desert Museum field trip to Split Rock Canyon.
- Dec. 3-4—Sports Car Road Races, Palm Springs, California.
- Dec. 6—Dons Travelcade to Miami copper mines, from Phoenix, Ariz.
- Dec. 9 — Santa Claus Parade, Lancaster, California.
- Dec. 10—Palm Springs, California, Desert Museum field trip (destination unannounced).
- Dec. 10-11 — Dons Travelcade to Tucson-Ajo and Saguaro National Monument, from Phoenix, Arizona.
- Dec. 10-12 — Tortugas Indian Ceremonials, Las Cruces, New Mexico.
- Dec. 11—Desert Sun Ranchers Rodeo, Phoenix, Arizona.
- Dec. 11 — Achones Procession after Vespers, Taos, New Mexico.
- Dec. 12-18—Sixth Annual Thunderbird Invitational Golf Tournament, Palm Springs, California.
- Dec. 17—Arizona Snow Bowl opens for winter season, Flagstaff.
- Dec. 17—Palm Springs, California, Desert Museum field trip to Lost Palms.
- Dec. 18 — Dons Travelcade to old Army Post at Fort McDowell, from Phoenix, Arizona.
- Dec. 18—College of Southern Utah's Annual presentation of the *Messiah*, Cedar City, Utah.
- Dec. 18—Salt Lake Oratorio Society's Annual presentation of the *Messiah*, Salt Lake City, Utah.
- Dec. 18—Palm Springs, California, Civic Chorus presentation of the *Messiah*.
- Dec. 19-24 — Bethlehem Pageant, Joshua Tree, California.
- Dec. 24 — Procession of the Virgin, Taos, New Mexico.
- Dec. 24—Christmas Eve festivities in Spanish villages throughout the Southwest. Bonfires for El Santo Nino (the Christ Child) lighted before houses, in the streets and before candle-lit Nacimientos (Nativity scenes).
- Dec. 25 — Deer Dance, Taos, New Mexico.
- Christmas Week—Nativity Plays, Los Pastores and Las Posadas, given in St. Joseph's auditorium and in homes of descendants, Taos, New Mexico.
- Dec. 26—Desert Sun Ranchers Rodeo, Phoenix, Arizona.



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Artist's conception of the ichthyosaur and its young. Photograph courtesy of the American Museum of Natural History.

BACK IN THE Earth's dim past when the Sierra Nevada was yet unborn and much of our Southwest desert was submerged under warm ocean water bordered by lush tree ferns and palm-like cycads, this slowly emerging continent was roamed by strange prehistoric beasts, and the unchallenged King of the Sea was the Ichthyosaur.

Following the initial appearance of their kind perhaps 200 million years ago, these great dolphin-like creatures flourished throughout most of the Triassic, Cretaceous and Jurassic periods. About 100 million years ago they had become extinct.

The ichthyosaur, for some reason, never received the publicity accorded his land-roaming contemporary, the dinosaur, and his name, until quite recently, was almost unknown save to paleontologists and serious students of geology.

But now that has been changed. Today, there is scarcely a literate Westerner who has not at least a reading acquaintance with the ichthyosaur. Ichthyosaur is compounded from the

Greek *ichthys*, which means fish, and *sauros*, a lizard. It is properly pronounced ick-thy-o-sar with accents on the first and fourth syllables.

This sudden and belated interest in a long-dethroned sea king is attributable to the discovery and excavation of a great new ichthyosaur graveyard in West Union Canyon, in the Shoshone Mountains of Nye County, Nevada.

The question of who first discovered the fossil ichthyosaurs in Union Canyon will probably never be settled to the satisfaction of everyone. Early mining prospectors in the Berlin-Grantsville area are said to have known of the fossil bones but these men were interested in precious metals, not scientific discoveries and they left the giant fish-lizards undisturbed and unheralded. Probably the first paleontologist to examine the deposit was Dr. S. W. Muller of Stanford University, who came upon the ichthyosaur graveyard in 1928 while searching for marine invertebrates. Dr. Muller reported his discovery to Mrs. Wendell Wheat of Fallon, an associate in archaeology at Nevada State Museum and she, in turn, referred the matter to Dr.

Union Canyon, Nevada. . .

Burial Ground of Ancient Sea Monsters

Although the land around Union Canyon, Nevada, is broken and bare, 200 million years ago it was under water. In that ocean lived and died the terrible fish-lizard, ichthyosaur. The old sea floor was uplifted 7000 feet above its former level and the bones of that sea monster—now turned to stone—rest just as they were deposited. Scientists acclaim the Nye County discovery the best yet found in the world.

By NELL MURBARGER
Map by Norton Allen

Charles L. Camp, professor in paleontology at the University of California.

Despite a keen interest in Mrs. Wheat's report and a burning desire to examine the deposit, Dr. Camp's 40 years' experience in such matters taught him that undertakings of this sort generally involve considerable expense, and he feared that excavation of the site would prove too costly for the limited funds then available. When he learned, however, that preliminary explorations had been made by Mrs. Wheat, using only a worn-out kitchen broom, he agreed to visit the site. In the fall of 1953 he and a colleague, Dr. S. P. Welles, made a field trip to Union Canyon. What the two men found was far more than enough to excite their enthusiasm.

In June, 1954, Dr. Camp obtained sabbatical leave to work on the ichthyosaur project, which he undertook with a crew of 11 friends and university students, each of whom had volunteered to devote part or all of his summer vacation to the performance of unpaid manual labor in the fossil quarry.

Considerable progress was made during that first summer and before snow fell it was known that this was not the burial place of an isolated ichthyosaur, but a massed entombment of numbers of these giant sea dwellers. These West Union Canyon ichthyosaurs, which had perished some 160 million years ago, were the largest of their kind ever found anywhere in the

world, the scientists learned. Prior to this discovery the ichthyosaurs of the Triassic were believed to have never exceeded 35 feet in length, yet at least one of these fossil giants of Union Canyon measured more than 50 feet, with nine-foot ribs.

Information concerning this significant development was first released through the newspapers of Fallon and Reno, in July, 1954. The story immediately captured the public interest and in a span of three months a dozen organizations were raising money to erect a fence around the deposit and to hire a watchman to protect the quarry against possible vandalism. In addition various Nevada groups united in a "Park Those Bones" campaign, the objective of which was to secure permanent preservation of the ichthyosaur quarry, either as a national monument or state park.

In the course of all this publicity, the rather twisty Greek word, ichthyosaur, quite naturally underwent slight alteration. Before more than a dozen vertebrae had been exhumed the ichthyosaur of Union Canyon became known as "Ichy."

Although the work of excavation was necessarily halted through most of the winter of 1954-55, the publicizing and campaigning continued without abatement. Determined efforts by many interested persons, plus the pressure exerted by Col. Thomas Miller, chairman of the Nevada State Park Commission, early in 1955, led to the creation of the Nevada State Ichthyosaur Park. Although under State Park Commission jurisdiction, the new reservation was given a special governing board comprised of Norman Hansen of Gabbs, chairman; Margaret Wheat, secretary; Dr. F. G. Tagert, Austin; Harold Newman, Berlin; and Don Bowers, Fallon.

Soon after the initial announcement of the Union Canyon discovery appeared in Nevada newspapers, I visited the excavation site. So little work had then been done, however, and so little had been learned concerning the extent of the deposit that I decided to await further developments before writing the story for *Desert Magazine*.

Weeks later I returned to the canyon and found a number of changes.

The tents that earlier had sheltered Dr. Camp and his contingent of student workmen had been replaced with a shed built from the lumber of a collapsed store in the ghost town of Berlin — the same material having functioned, even earlier, as a store in the old mining camp of Ione. This shed was being utilized as a semi-open-air kitchen and living room. A cabin, donated by the U. S. Forest service,



Dr. Charles L. Camp, left, and Col. Thomas Miller examine the latest fossil discovery. Photo by the author.

served Dr. Camp for sleeping and office purposes; another small cabin was used as a guest cottage for visiting officials and a brown army tent, set back in the pines, was occupied by Dr. Camp's long-time friend, Col. Carter Collins (retired) of Berkeley.

The arrival of volunteer student

laborers and Dr. Camp's youngest son, 13-year-old Roderick, was not scheduled until after the close of school. The canyon, as a consequence, was still blissfully quiet and peaceful during those final days of May, 1955, when its sole inhabitants—except for an occasional rockhound or stray trav-

Dr. Camp watches the Harold Newmans, senior and junior, sandblast away the loose material from the harder fossils. Photo by the author.



eler—were Dr. Camp, Colonel Collins, the ichthyosaurs, mourning doves, and me. It was my privilege to learn much more about ichthyosaurs and their exhuming than would have been possible had the busy summer work program been in full swing.

The Ichy, I learned, had been a creature quite similar in appearance to a present-day dolphin or porpoise. He was stout—the larger specimens thus far discovered measure eight feet in diameter—and his forward end had terminated in a long, slender snout, fitted with numerous sharp teeth. As a means of propulsion he had a large tail fin, a dorsal fin, and four side paddles, or flippers, consisting of a curious mosaic of bones enclosed in tough, connective tissue. His skin was smooth, only slightly wrinkled, and without scales.

During the first year of excavation Dr. Camp located portions of at least 14 ichthyosaurs—the largest of which measured 50 feet from tail to snout, with ribs nine feet in length and vertebrae 13½ inches in diameter. The live weight of such a specimen, Dr. Camp estimated, would have been around 10 to 12 tons. While this still would leave the ichthyosaur much smaller than his land-roaming contemporaries and only about half as long and much lighter than the giant whales of today, he was probably, in his day, the largest creature that swam the oceans.

After ascending in prominence and flourishing for some millions of years, the giant ichthyosaur began a steady decline to extinction. No one knows for certain what factors contributed

most strongly to his downfall, but his big, unwieldy bulk made it easier for the smaller and more active members of his own kind to replace him. Neither is it known why so many ichthyosaur skeletons were deposited in West Union Canyon. Possibly a strong water current or undertow, carried the dead bodies to this point in the same manner that driftwood collects abundantly in certain coves.

Ichthyosaur skeletons of unknown number accumulated in this area and here they settled in the soft ooze on the ocean's floor.

Possibly 100 million years passed until, in the Miocene period, this part of the world began rising. Igneous eruptions became active; the land crumpled and buckled and folded and kept on lifting, until it rose 7000 feet above its former level. The sea bottom muck changed gradually to shale and limestone and the ichthyosaur bones, ammonites and other marine mollusks entombed in that muck, changed to heavier and harder stone.

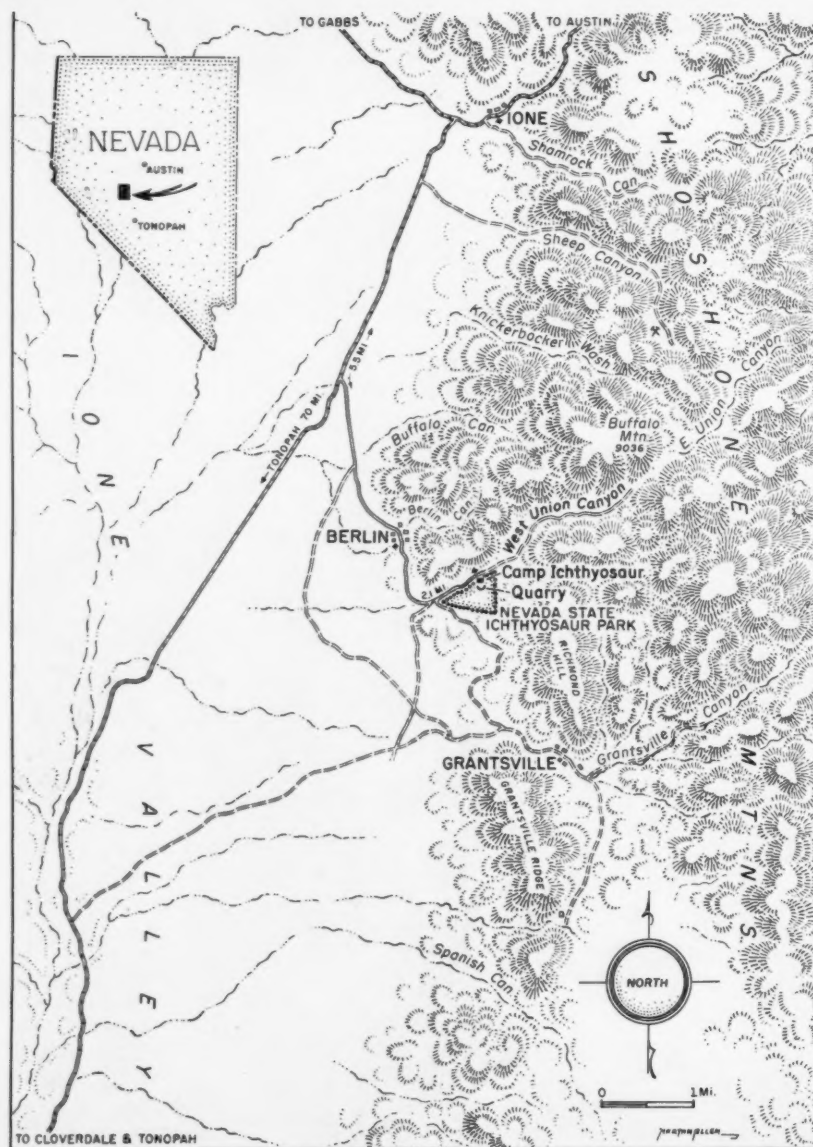
Disentombing these fossil skeletons is a slow and painstaking operation. After the heavier over-burden has been cleared away by bulldozer, the careful work with hand shovels, rock scratcher and whiskbroom, and a final furbishing with sandblasting equipment follows. The bones remain in place in the hillside bedrock, slightly higher than their imprisoning matrix—much like figures in bas-relief.

From the time Dr. Camp first began work at the quarry it was his feeling that these incomparably fine fossils should not be torn out of their canyon-side tomb and packed off to covetous museums in other states, but that they should be left intact in Nevada.

There was no one happier than Dr. Camp when the ichthyosaur quarry and a 100-acre triangle of National Forest land were set aside as a state park wherein the exposed fossil skeletons are to be permanently safeguarded against despoliation by vandals and souvenir seekers.

In addition to observing the work at the quarry, where Dr. Camp and the Harold Newmans — senior and junior—of the nearby ghost town of Berlin, were daily engaged in the painstaking and trying operation of sandblasting the limestone-imprisoned fossils, I found that the immediate environs of the canyon provided many other fascinating points of interest.

Among these were Dr. Camp's headquarters, where I was especially interested in examining the many conveniences this veteran camper had devised and fabricated from odds and ends.



The main building of the camp—that aforementioned shed-like affair built with third-hand lumber—consisted of one wall, half of one sidewall and a roof of which two corners were supported by planks. The opposite corners were spiked to the trunks of uncut pinyon pines whose leafy heads rose well above the structure and kept it cool and shady. In the shelter of this building were an oilcloth-covered table, several pine benches, a few mismatched chairs and an overstuffed divan salvaged from the Wheats' back yard in Fallon. On the walls of the building were hung skillet and kettles, assorted kitchen implements, and a bank of orange-crate cupboards holding dishes and canned goods. Just outside the building was a homemade campstove consisting of four earth-filled gallon cans topped by a slab of sheet iron. For quick snacks and coffee a two-burner gasoline camp stove was available, and a gasoline lantern provided the camp area with light.

One of the outstanding features of the camp was its water system. From a cold spring about 200 yards up-canyon, water was piped by gravity flow to this open-air kitchen-dining room, where it served a sink faucet and continued on to a metal roof tank over a shower bath.

"You'll notice that the tank is painted black to absorb the rays of the sun, and the adjacent roof area is coated with aluminum paint to reflect the rays; so if we have any sun at all, we are assured of hot water for bathing while our quarters remain cool," Colonel Collins pointed out.

In addition to the shower outlet a length of copper tubing led from the tank's bottom to a burlap-covered refrigerator at one corner of the kitchen. Water dripping over the top of the refrigerator kept the burlap constantly wet, and by the processes of evaporation a cool enough temperature was maintained to preserve fresh milk and meat for several days. After servicing the cooler surplus water passed off through a drain to irrigate Dr. Camp's garden, which consisted of one clump of rhubarb, ten stalks of corn, two diminutive rows of lettuce and some carrots.

Because of my interest in Western history, I spent two very enjoyable days prowling through the several ghost towns in the vicinity of Camp Ichthyosaur.

For a mile or so on either side of the quarry West Union Canyon is studded with the crumbling frame, adobe, brick and stone ruins of the early mining town of Union—a place that flourished in the late Civil War



Resourceful scientists made this camp building from odds and ends found in the canyon. Dr. Camp attends to the cooking while Col. Carter Collins takes his ease. Photo by the author.

years, and faded soon afterward, to rise briefly again when the Berlin mine started in the '90s. Charles Joseph of Tonopah, who passed his boyhood in Union, pointed out to Dr. Camp the schoolhouse site. He proved his assertion by searching through the head-high sagebrush where he found the wrought iron end support of an old school desk. The remains of an early brick yard and a well-preserved kiln for burning lime are still to be seen a short way up the canyon from camp headquarters, and the ruins of old stone and adobe buildings are visible through the tall sage.

Over the ridge on the south lies the weathering ghost of Grantsville. A contemporary of Union, this place once had 42 business establishments, including two newspapers and a brewery, and a population of 1000. All that remains are a few old stone buildings, a great pile of mill tailings, and a paling-fenced cemetery so old that not one inscription can be read on its time-scarred headboards.

And, of course, there is Berlin, two miles to the north of Union Canyon. For the past 10 years Berlin has been the home of Harold and Dorothy Newman and for a much longer time has been the home of Mack and Will Foster, two fine old timers who died there early in 1955 at the respective ages of 85 and 88.

While Berlin is not as old as Union, Grantsville and Lone, it was going strong in the 1890s, and is historic enough to fire the interest of any

ghost town. Although the store and postoffice collapsed a couple of winters ago, the old mill building, assay office, boarding house, and several cabins are still standing. In the lonely little cemetery below town are several graves whose identifying inscriptions can still be read.

Looking at these narrow and all-but-forgotten graves, I could not help but think how strange are the deviations and deflections that mark the course of man's progress and man's history.

The old-time miners, wood-cutters and freighters who peopled these once-busy towns of Grantsville, Union, and Berlin, and probed into these mountains in their everlasting search for precious metals, little supposed that less than a century later the fossil bones over which they trod daily would bring to West Union Canyon more persons than ever were brought by gold and silver.

We have no reason to suppose that some future generation of men—or possibly a different race of man-beings, altogether—will not some day walk these same hills and find something that is of greater value to them than either gold or silver or stone mementos of Earth's dim ages. Until that time, however, the name of Union Canyon will loom large in the special world of the paleontologist, and the treasure of Nevada's Shoshone Mountains will continue to be the cemetery of the great Triassic Sea King—Ichthyosaur.

LIFE ON THE DESERT

Christmas in Keams Canyon

By JOSEPH SCHMEDDING

IN THE 16 YEARS I have spent on Indian reservations as a trader, the Christmas holidays have all been about the same. Each December 25 is a replica of the one before. We knew what to look forward to and what preparations to make.

Unlike off-reservation businessmen, traders do not look for a big Christmas business. In fact, there is no business during this period and much free distribution of gifts to the Indians and to the various missions which provide feasts for their flocks.

In Keams Canyon, Arizona, where we lived for nine years, we were surrounded by a beautiful land that provided a White Christmas background. At an altitude of 7000 feet winter sets in early here and from about Thanksgiving on the world rests under a blanket of deep snow. This is the only outward evidence of Christmas. There are no brightly lighted store windows with gay and colorful displays — no Christmas trees crowded into the corner lot where they are offered for sale. But, despite this lack of outward indication, everyone is aware of the approaching holiday and the very air is permeated with the Christmas magic.

For weeks my Indian friends ask, "How many more days 'til *Krissmuss*?" and the same question is asked of the missionaries and government employees at the Indian agencies. Like impatient children they eagerly look forward to their *Krissmuss*, as they mispronounce it, for *Krissmuss* has taken on a real and special meaning for them.

Assisted by my wife and two clerks, I began the customary preparations at an early date. It is quite a job to make up gift packages for the many visitors that will flock to the trading post on Christmas Day. These packages contained stick candy, cookies, popcorn, chewing gum, and similar treats for the children. For the adults suitable items are included, such as warm flannel shirts for the men, velveteen for a new blouse for the women. Assorted groceries, principally coffee and sugar

and some canned goods are included. Some of the packages, intended for families whose particular needs are acute, will contain some articles of clothing for their little ones. These special bundles will be marked with the name of the intended recipient to insure correct distribution. The unmarked packages will be handed out to our friends indiscriminately for they contain virtually identical gifts in order to avoid envy or disappointment.

In the missions, whether Catholic, Baptist, Mennonite, Mormon or Protestant, there is similar activity. The congregations that support the Indian missions send assortments of used and new clothing, shoes, warm underwear, caps and something the Indian children only get at Christmas time, toys of every kind and description. In addition, the missionaries usually prepare feasts for the cold and hungry people who descend upon them for the traditional *Krissmuss* dinner.

Every year, shortly before Christmas, I am asked by both the Baptist and Catholic missions in this vicinity to do my share toward making the feast possible. I donate flour for bread, quarters of beef, whole sheep and quantities of coffee and sugar. And this I give gladly—it is our way of creating good will and helping these people—our friends.

A day or two before Christmas the Indians begin to assemble at the trading posts and missions. Very little actual trading is done, but the Indians come early so as not to miss any part of the festivities. By Christmas morning every guest hogan is filled with visitors.

Outside the snow lies high. It is cold in these high altitudes and a blizzard may sweep down on us at any time during the holiday season. Those hardy children of Nature are inured to the inclemencies of the weather—nothing would keep them from this festive gathering. In their tedious existences there are few social gatherings. Thus it is no wonder that all who are able flock to the glittering celebration put on for their benefit.

The snow is heavy on the ground but the Indians leave their warm hogans anyway and trudge the many miles to the Trading Post and the Missions. It is Christmas time and there will be a joyous reunion with old friends, gifts, games, good food and prayer. Indian Trader Joseph Schmedding describes a Hopi Christmas in the high country of Keams Canyon.

The chapels of the various missions have an overflow attendance on this day. The missionaries, one and all, and regardless of denomination, are among the hardest workers in this remote vineyard of the Lord. On this day, at least, they have visual proof that their efforts and unselfish work show increasing fruitfulness. With the increasing number of Indians who learn to speak English, it becomes progressively easier to disseminate the joyful message of Christ's birth.

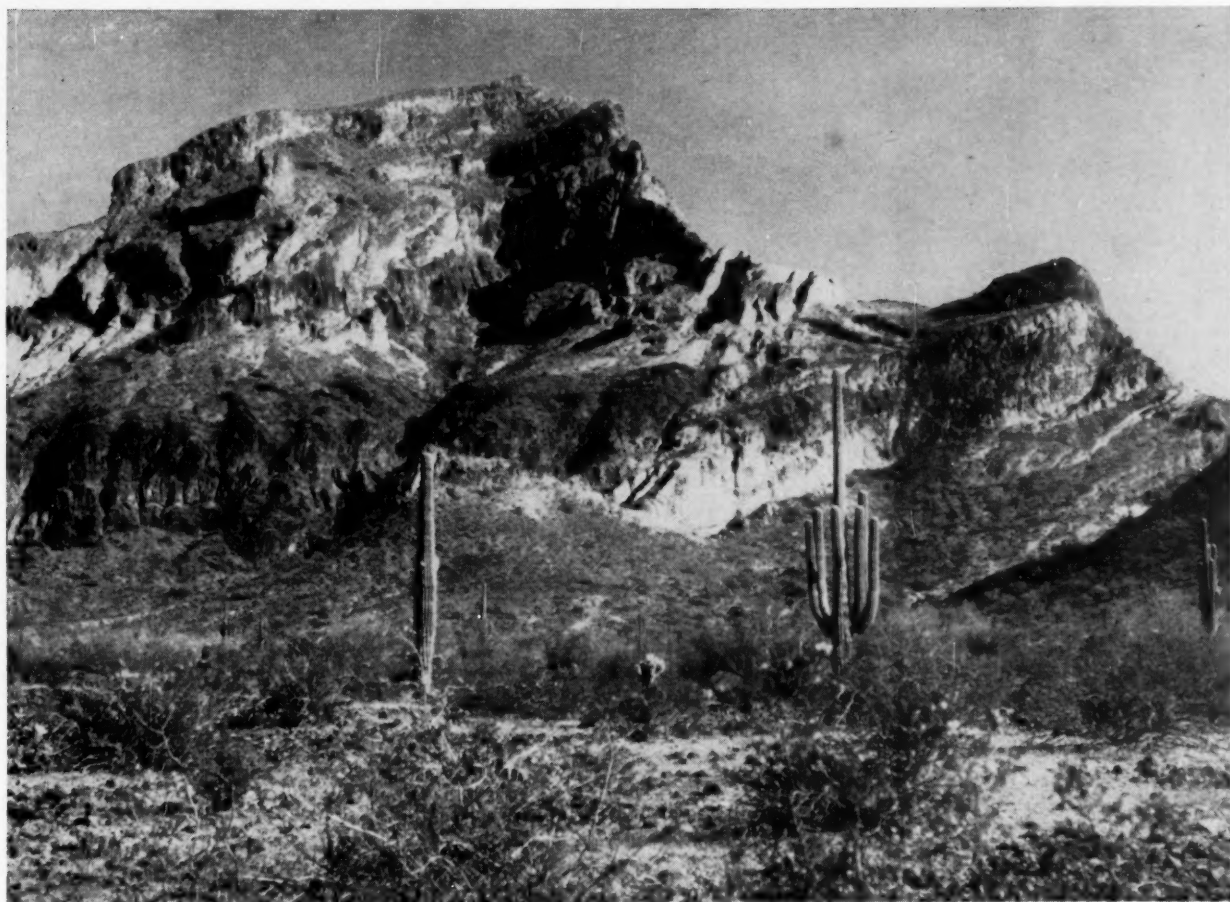
The atmosphere is filled with Good Will Toward Men. The Indians who have but a dim conception of the religious aspect of Christmas know, instinctively, that this celebration is more than just free food and gifts. Through the Christian example of sharing with the less fortunate, not only materially but also spiritually, we bring the message of Christ to many who earnestly, if unconsciously, desire it.

After the chapel service the frolicking begins. There are large gallon containers with steaming coffee. Stacks of freshly-baked bread are piled high upon improvised tables. Meat has been roasted over open fires and huge chunks are carved from quarters of beef and halves of mutton. Nobody is forgotten and there are seconds and thirds for all who want them.

In our trading post we are busy giving out the gifts. Wrappers are removed immediately and the contents inspected critically and compared with the assortment received by neighbor or friend. There is much jolly wisecracking and general hilarity. All day long new faces appear. Some Indians were delayed by snowdrifts and other obstacles.

By late afternoon the crowd begins to thin out. Dusk falls early and it is a cold ride back to the home hogan. With happy shouts and repeated thank yous and also an occasional "*Krissmuss*," meant to be "*Merry Christmas*" in the white man's fashion, the last ones disappear over the snowy distance.

Another Christmas has joined the many previous ones. Again the joyful message has been told and lived.



Saddle Mountain in Western Arizona where chalcidony is found in abundance.

Saddle Mountain-- Collector's Paradise

In a precipitous range overlooking the junction of the Hassayampa and Gila Rivers in southwestern Arizona, Glenn and Martha Vargas found a mountainside where almost unlimited quantities of chalcidony are weathering out of the fractures and cavities of an ancient lava bed.

By GLENN and MARTHA VARGAS

Photographs by the authors

Map by Norton Allen

AFTER ATTENDING the rockhound convention in Indio, California, in the Spring of 1954, we camped at Wiley Well. Our camp neighbors were Mr. and Mrs. John Adams of Phoenix, Arizona, who showed us almost unbelievably large chalcidony roses and geodes they had collected in the Saddle Mountains northwest of Hassayampa, Arizona.

They also showed us fire chalcidony, known by many as fire agate. Their specimens were dark, tending more toward purple and brown, but just as beautiful as the lighter Coon Hollow material.

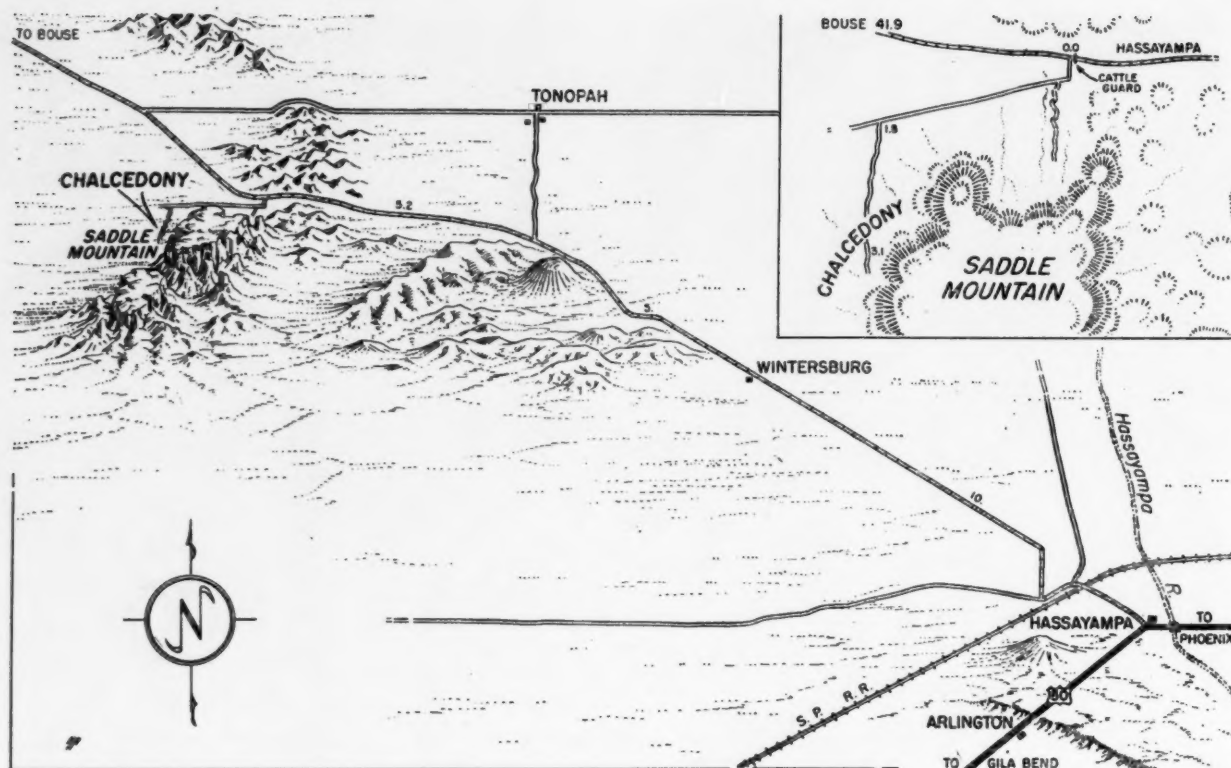
Every rockhound field trip leader has dreamed of a collecting area which contained enough material to satisfy the needs of a large group of people,

and by the Adams' description, Saddle Mountain was just such an area. We determined at once to make the trip and we invited Richard "Hap" Ward of Palm Springs to accompany us.

A few days later we headed our station wagon toward Salome, Arizona. The Adams' supplied us with a map to the collecting area and in accordance with this map we turned south at the intersection in the main street of Salome—the road which leads to Hassayampa.

We followed this road as it wound across a nearly level plain that contains a number of farms. Water was flowing in the irrigation ditches and fields of barley were showing slight tinges of yellow. On the open range, cattle watched us from behind unusually large creosote bushes. Hap called our attention to a very spiny shrub which we identified, with the aid of Jaeger's *Desert Wild Flowers*, as a crucifixion thorn. The plant was striking, growing to a height of nearly 10 feet, sparingly branched and bearing thorns two-inches in length.

Our map indicated a cattle guard



40 miles south of Salome marking a junction with another road which would take us to the Saddle Mountains.

Twenty miles from Salome we caught the first glimpse of the mountain which did indeed resemble a saddle, but it looked more than 20 miles away.

Our speedometer registered 42 miles when we reached the cattle guard. The road branching off toward the mountain was inferior to the one we had just traveled on, but it was quite passable. Traveling on it for one and eight-tenths of a mile, we came to our next landmark, a rock cairn where we were to leave the main road and follow a little-used trail to a campsite at the base of the mountains. This trail consisted of two tracks across a rocky alluvial fan. It called for slow and careful driving.

Arriving at the campgrounds we were delighted to find Mr. and Mrs. Adams there.

Spreading around us lay the collecting area of our dreams. The ground was covered with brown and white chalcedony. Even though the day was nearly spent we could not resist the temptation to start our search at once—or rather, our selection of the better pieces, passing over many hundreds of inferior specimens.

The foot-trail led up a low hill. We turned east on the hill and walked across a large wash, passing through a stand of Bigelow Cholla cactus. The plants to the west were brilliantly back lighted by the sun which now hung low over the horizon. Past the patch of cacti we entered an area covered with huge boulders and on some of them found petroglyphs—those strange picture writings of the Indians. Our experience has been that where one found petroglyphs there was water nearby. A quick look around showed us only sheer cliffs and steep slopes, however. It was not until our third trip to Saddle Mountain that Conrad Vargas found the water in an almost inaccessible canyon a short distance east of the petroglyphs. Water falling down a cleft in the face of the mountain had created a large basin at the base of each fall. Water will sometimes remain in these natural tanks, or *tinajas* as the Mexicans call them, from one rain storm until the next, and they serve as watering places for both prospectors and the wildlife of the area.

The rock here is rhyolite, and it is in the fractures and cavities of this volcanic stone that chalcedony often is deposited.

On some parts of the mountain the cavities are very numerous, and these are the source of much of the chalce-

dony scattered over the slope and the plain below. Rhyolite occurs here in distinct layers, each of different texture and hardness. One stratum near the base of the mountain is 30 feet thick, but contains little chalcedony.

After the lava was deposited, movement at or near this area caused these layered beds to tip. The entire mountain dips to the east in about 20 degree angles. The formation of the chalcedony found in the various openings within the lava probably took place at the time of this tilting. The creation of quartz and its varieties (chalcedony is a variety of quartz) usually takes place when super-heated water of approximately 700 degrees Fahrenheit rises into a formation from a thermal area beneath the surface. During the upheaval period at Saddle Mountain, the small cracks that resulted from the tilting process were excellent channels for that super-heated quartz-laden liquid.

A few feet from the petroglyphs we found almost perfect rosettes of radiating clear quartz crystals. In our mind's eye we could see these beautiful crystals made into jewelry or adorning the crystal collector's display case. Close examination revealed that a few of the crystals were hollow, a much coveted prize.

The fast fading light of day forced us to return to camp. Our short search

had already resulted in bulging pockets which contained material as fine as we usually gathered in a full day of hunting in other areas.

After our evening meal Adams told us they discovered the collecting field only a few years before. Discovering fire chalcedony in the washes and on the flats caused Mr. Adams to climb the mountain in search of the material's source. There is only one trail up to the top and he discovered it after a number of tries. On the first bench of the mountain he discovered large chalcedony and quartz-lined geodes. Finally he found the material with the fire inclusions on a lava cliff high on the east side of the saddle.

On the morning of the day we arrived at Saddle Mountain, he had blasted loose a huge block of the lava and gathered from the debris a large amount of fire chalcedony. Some was coated with an opal layer that fluoresced.

The clear warm dawn heralded one of those hot days so characteristic of the desert in early April. After a quick breakfast we started up the mountain's almost perpendicular face. The trail was a difficult one. Our first stop was at the blasted cliff where it was an easy task to find the fire in the vugs and to break the desired pieces off. In some ways fire chalcedony resembles fire opal, but physically it is quite different. According to the Smithsonian Institution, the fire is produced by a thin layer of iridescent iron oxide that has been coated with a thin layer of clear chalcedony.

Prehistoric Indians left these petroglyphs on the boulders near the quartz crystal rosette location.



Glenn Vargas examines a specimen on the bench above the water tanks. Those in the foreground weigh 25 pounds.

In a short time we had all the rock we deemed wise to carry and we headed for the geodes. The entire saddle was sprinkled with chalcedony. The ground was covered with pieces weighing up to 10 pounds and colored in rich orange and brown that is so characteristic of the material.

On the geode bench we came across

specimens so large that we were astounded. Some of these weighed 25 pounds and the whole area was strewn with them—any one of them a collector's item. The mouths of the cavities were ringed with chalcedony ranging in color from the common white or cream through the yellows, oranges and browns. Some cavities were lined with hundreds of quartz crystal terminations and a few showed interesting stalactites of colored or clear chalcedony.

During our descent, a nighthawk flew out from under a bush. Our attention was drawn to the bird's nest in which we saw a newly-hatched chick and an egg. The egg was pipped and we spent a half hour watching the second chick emerge from its shell.

After lunch we cleaned the specimens and after the heat of day passed, went back to the flats to search out more fire chalcedony. Here we discovered some specimens of banded chalcedony which, when tumbled, make striking baroques.

When the day finally drew to an end, we packed up our gear and gathered up the wonderful specimens we had collected. In a few minutes Saddle Mountain was behind us. Our conversation during the long ride home centered around leading our rockhound friends back to the collector's paradise we had just visited.



Sketch by Bonnie Welch, California artist

ROAD OF PEACE

By LORNA BAKER
Los Angeles, California

There came across the desert sands
Three kings of wide renown
Each bearing gifts in eager hands
And wearing not his crown.
The way was cold, the journey far,
But still they traveled on,
While high above, a guiding star
In dazzling brightness shone.

How strange that heaven should decree
Of all this world—so wide—
A lonely desert path should lead
His chosen to His side—

Close to our hearts, the picture clings
Of humble manger, when
A Babe in swaddling clothes was King
And kings were only men!
Today, as on that silent morn,
His wondrous blessing stands,
For Peace on Earth is ever born
Across the desert sands.

Preserved

By TANYA SOUTH

Nothing is lost of wisdom or of
worth.
All is preserved—whether it dwells
on earth
Or in some inner interstice alone. It
rests
Within that Source of all. And cradled
there,
Can be recalled at need. And Truth
attests
To its existence, and God's loving
care.
Nothing is hidden. Someone's eyes
can see.
And on your choice of ways waits
Destiny.

Christmas Thought

By MARIE JENNINGS
Laveen, Arizona

Some there are who wish for Christmas
white,
Who miss the crystal glitter of the snow,
Remembering holidays with brilliant lights
Reflected on the frosty scene, aglow.
Their hearts turn back to childhood's mem-
ories

Recalling wintry contrasts as they dream:
Green pine, white snow, cold sparkling air,
And fireplace cozy, with warmth supreme.

But I embrace the brilliance of the star-light
Enhanced by every grain of desert sand;
I watch breeze-ripples cross the dry-brown
grass
And catch its fragile fragrance in my
hand.

I crush a twig of desert shrub, its odor
Redolent of frankincense' sweet spice,
And know that such a desert land as this
Beheld the angels on their sacred tryst.

The shepherds on that old Judean hill
Saw such stars as these that here enthroned.
They knew the desert night in all its beauty,
And heard the whisper of its quiet song.
On such a night as these my desert knows
That heavenly paean swelled upon the air.
Let's glory in a season that we know
Was shared by one whose birth was
herald' there.

WINTER NIGHT

By GRACE PARSONS HARMON
Desert Hot Springs, California

The stars are gold in the desert sky
When the west's rich hues have gone;
The cholla wears a silver wreath
As the moonlight gilds each thorn;
The coyote's call rings clear and near
Where the hill's blue shadow lies;
The wintry chill calls the heart of me
To dream where the bright flames rise—

With a letter to read from the one that
I love
As the firelight plays on the rafters
above.

DESERT RIVER

By MILDRED BREEDLOVE
Las Vegas, Nevada

As dry as the top of a desert hill
Lies the bed of a desert river;
Not a spring nor a brook nor a creek to fill
Her bed, or master her raging fever.
Not a bush nor a tree on her sunny bank,
Nor moss to cover it over;
Only the sands where the water sank,
And the rocks that give them cover.

Unchanged for a year, or a decade, or two,
As the sun goes his way unobstructed;
But when rain clouds have chosen a ren-
dezvous,
Half the water of earth is abducted
Then released all at once with a deafening
roar,
And a power the sands find abhorrent;
One stroke of the heavens has evened the
score,
And the river explodes in a torrent.

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THE DESERT'S CHRISTMAS GIFTS

By GEORGIA JORDAN
San Diego, California

The Christmas night is dry and crystal clear,
As silver moon and evening Star appear.
Is this the Star that lit a path to earth
When herald angels sang of Jesus' birth?

I find His peace here in the desert glow
On Christmas night as star-dust reaches low
And casts a spell on desert holly's spray,
Pale beauty for the season's holiday.

This virgin holly with the Star's uplift
Imparts the desert's timeless Christmas gifts,
A symbol of a crown of piercing thorn,
Of strength and lasting life, of peace reborn.

• • •

PAINTED DESERT

By GRACE BARKER WILSON
Kirtland, New Mexico

When sky gods mix their colors up
And splash them on the sunset sky,
Left over paints they drop to earth
And leave them there to dry.



In Vinegar Wash on the Southern California desert is this venerable patriarch of the Ironwood clan, believed to be centuries old.

Valiant is the Ironwood

Cap Smith has traveled the length and breadth of the Desert Southwest with a friendly eye out for the tough and gnarled old ironwood trees that shade travelers, house birds and feed insects and small animals. Recently Carl Walker led Smith to Vinegar Wash off the Ogilby-Blythe road in California where stands the largest ironwood Smith has ever seen—a "middle-aged" giant that was a youngster when the Conquistadores hunted for their cities of gold.

By CAP SMITH
Photograph by the author

LAST WINTER my wife and I accompanied the Carl Walkers of Gold Rock Ranch, Imperial County, California, on a jeep trip into Vinegar Wash—a little-known desert canyon off the Ogilby-Blythe road. In this remote area of dry rivers, deep sand and burning sun, we came upon some of the largest ironwood trees we have ever seen.

Dad Walker, who has lived on the desert for more than 30 years and is familiar, as few men are, with its hidden canyons and the wild life they support, stopped the jeep and waved toward one of those great spreading trees.

"I think that's the biggest and oldest ironwood tree in the Southwest," he said.

Deserts are not noted for big trees. Perhaps this accounts, in part, for the fact that every desert resident holds in his mind at least one ironwood tree (*Olneya Tesota*) that he considers outstanding. When my father and I were prospecting and mining on the Lechuguilla Desert southeast of Yuma, Arizona, we noticed an exceptionally thick-trunked ironwood growing in a wash just below the ancient Indian camp at Raven Butte. Considering the scant rainfall in that area and the ironwood's slow rate of growth, that

tree could have been seen by Father Kino when he first visited the area in 1699. Indeed he may have passed within 25 feet of it. For years we considered the Raven Butte tree the largest desert ironwood in existence.

That was before we saw the Lumholtz tree, growing between Tinajas Altas and Tule Well, south on the Lechuguilla along the Devil's Highway. Lumholtz in his *New Trails in Mexico*, 1912, reported that tree as being an unusually large specimen. Travelers since have confirmed this (*Desert Magazine*, January, 1951). It is an exceptionally shapely tree, symmetry not being common in ironwoods.

The Lumholtz tree, still in its prime, may be the most symmetrical of all large ironwoods, but after carefully sizing up Dad Walker's Vinegar Wash giant, I agreed with him that his could well be the most massive and ancient ironwood tree alive today.

Split by the weight of its ponderous branches, wrenched and twisted by tornadic winds, that old veteran has

lived through periods of prolonged and terrible drouth that killed younger trees whose smaller skeletons stand naked all around it. Though past its prime, it still puts out a great canopy of shade—nesting places for birds, shelter for sun-wearied wild things. Its tiny blue-green leaves look healthy as those of a lusty young seedling. Its enormous clusters of lavender wisteria-like blossoms, appearing in May or June if there has been rain, still furnish nectar for humming birds, bees and insects that visit it in swarms; its rich, oily beans, the dry pods of which lie thick at its feet, still supply food for doves, rodents and other desert creatures, as they have for centuries.

The indomitable ironwood needs few favors. The searing sun, the broiling heat reflected from sky and soil, are indispensable. Moisture it must have, but the deep beds of sand in the washes hold a little moisture for a very long time and the tree's roots are far-reaching. If rain does not come for a year or two or even five, it will turn the edges of its leaves to the sun and grimly hang on. Its iron heart is practically impenetrable to termites. Even after death its indestructible roots will hold it upright, a silver-black ghost against the pastel colors of the desert, a monument to itself as durable as marble.

A man who has lived much of his life on the open desert never stands under one of these ancient trees without thinking, with a touch of homesickness, "Just the place to camp. Bed roll here. Fire there. Grub box in that crotch. Canteens on this limb. Water cans over here in the shadiest spot." He thinks too of what the ironwood tree has meant to him and to other men who have traveled the desert before him: shade in an almost shadeless land; browse for burros; fuel for campfires; nutritious beans when other food sources failed.

The hard, fine-grained dead wood of the ironwood flares up like pitch pine and burns down to a bed of smokeless coals as hot and long-lasting as a coke fire. This perfect fuel for the dutch oven and coffee pot of the pioneer, not only baked the beans and sourdough bread for the old-time desert prospector, but sadly enough, fired the boilers for the mines he found and sold to exploiters who, without his esteem for the living tree, saw it only as fuel and felled the live tree as well as the dead. Wood choppers for the mines in the Cargo Muchacho Mountains cut down the ironwoods between the Cargos and the Sand Dunes from the Sidewinder Hills near Yuma almost to Glamis. Trees now growing in that area are seedlings or

have sprouted from the thick stumps of those felled 40 to 70 years ago. It may take a hundred years for them to attain their former size.

No doubt steamboats that plied the Colorado River were also fired with ironwood. Last winter we followed an ancient wagon trail up onto a mesa above Gavalin Wash. There we found ricks of ironwood cut in cordwood lengths which had been ricked up a very long time ago, probably before the last steamboat on the river made its final run.

Ironwood has a beautiful golden grain set off with brown and black and takes a high polish. Rare is the desert dweller who at some time has not toiled to make articles of it. The Indians fashioned arrow points, knives, hoes and digging implements from ironwood. Because of the wood's twisted form and grain, and its extreme weight, articles made are usually small. The wood is so heavy that a man alone can lift only a small log; so hard that it can be chopped across the grain only with great peril to the ax.

Ironwood can be sawed only a little easier than iron, resists the plane and repulses carving tools. It can best be worked with saw and scraper or sandpaper. Handsome things have been made of it. I prize a pair of book ends and a desk set I laboriously fashioned from a dead limb of an ironwood I personally knew and loved.

Information concerning rate of growth of the ironwood tree is hard to find. The only data I have seen stated that a tree eight inches in diameter was found to be 77 years old which figures to an inch of growth every 9.6 years. A tree 60 inches in diameter would be approximately 577 years old.

Specimens I examined under microscope revealed the difficulties of determining age by counting annual rings. Some of those rings are no more than a hundredth of an inch in width. There may be two or three such thin rings merging into a confused area where the cellular structure of the wood is completely obliterated to my 10 power glass.

Occasionally I could trace this area to a point where two or three thin rings emerged from it, as if one portion of the tree received more moisture than another. It may be that in periods of prolonged drouth when the tree is nearly dormant, it does not put on annual rings.

The average of the count for a 12-inch section, counting only identifiable rings, gave me 18 rings per inch (on the radius) or nine years per inch of diameter. How many years may be concealed I do not know, but fair

agreement with my first information is established. At either rate (9.6 or 9 years per inch), the Walker tree is between 550 and 700 years old.

That the Walker tree in Vinegar Wash is alive and unscarred by man today is largely due to its secluded location and the fact that no mineral has been found in its vicinity. Barring accident, that dauntless patriarch may live and continue its services to desert creatures for another century or so. What is time to one so venerable? The centuries of its life have seen the entire recorded history of our nation. They have seen the pageant of the Spanish Conquistadores, the American explorers—the gold seekers. Only yesterday the toot of the steamboat whistle echoed through its branches. Where is that steamboat now? Even the wild river it rode has been shackled.

I hope that the years will be gentle with Dad Walker's gallant old tree. I hope that it will receive at least one good rain a year, that desert wind storms will bypass it, that the ax will never scar its valiant iron frame.

I hope that some day I shall be privileged to spread my bed roll in its welcome, benevolent shade.

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TWO MEN EXPLORE GLACIER ON 13,000-FT. MT. WHEELER

Weldon Heald, author and historian, recently made public a report on an ascent of Nevada's 13,061-foot Mt. Wheeler, second highest peak in the state, where the writer and his companion, Albert Marshall of Three Rivers, California, explored a living glacier found there.

Heald and Marshall climbed the peak on its northeastern slope and entered the rim of the glacier's cirque (deep, steep-walled amphitheatrical recess in a mountain caused by glacial erosion). Although the precipitous walls and jagged rim are the most prominent features of the landscape, the explorers found that they were unable to see the cirque's floor from their vantage point. By working down the extremely rotted and dangerous slope east of the summit they reached the cirque's floor and there found the glacier.

Heald reported that the glacier's greatest activity is centered on the east or true right side. Here a double ice tongue, divided at its lower end by a rock island, slants steeply up the cirque wall.

A stream of considerable proportions drains the glacier, but the floor of the cirque is so heavily burdened with loose rock that the water flows beneath the surface for more than two miles down the canyon.



Bill Brown at the entrance to the Cave of the Winding Stair.

We Explored the Winding Stair Cave

By W. R. HALLIDAY, M.D.
Photographs by Bill Brown and
Walter S. Chamberlin
Sketch by Margaret Gerke

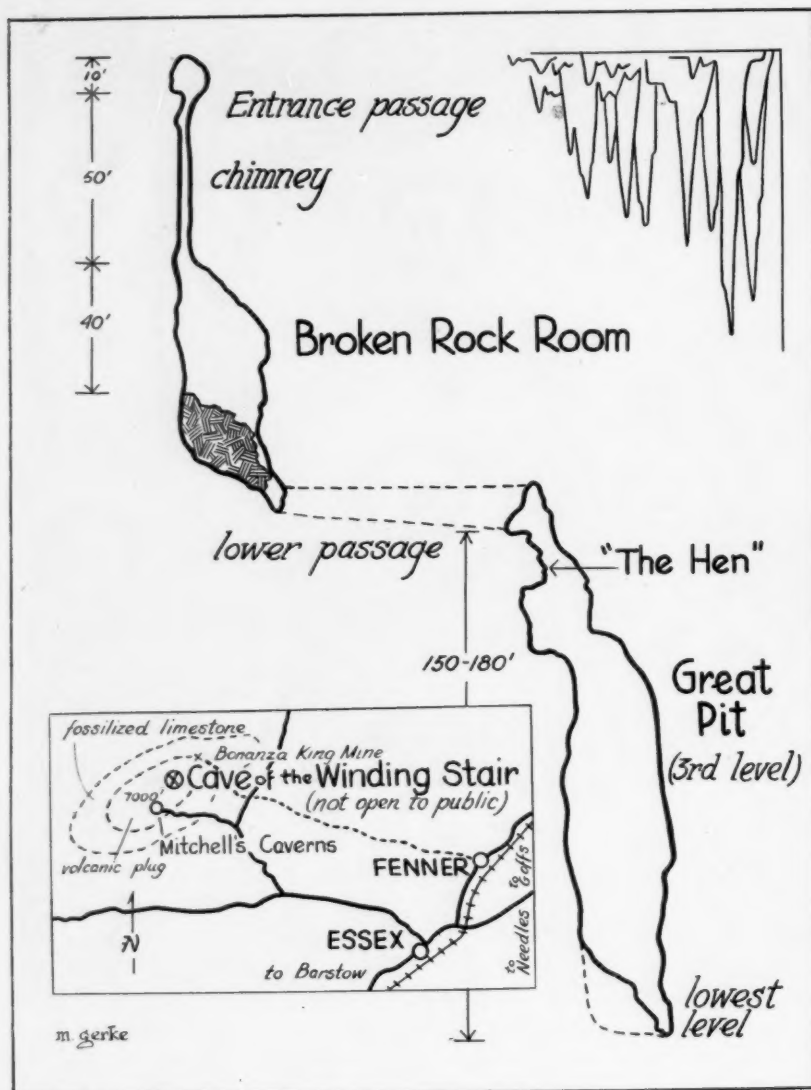
THE LATE Jack Mitchell of Mitchell's Caverns in the Providence Mountains of California once tried to explore the Cave of the Winding Stair—an effort which nearly cost him his life.

It was 25 years ago when Mitchell began the development of his caverns, he explored ever fissure in the limestone beds of the Providences looking

for the most beautiful caverns in the range to open to the public. High up one of the ridges he came across a small opening from which a passage corkscrewed down into the heart of the ridge, becoming larger as it dropped. Soon he came to a fissure which defied his flashlight beam. Rocks which he dropped, rattled from one wall to the other until the noise faded out. Mitchell realized that his discovery was of extraordinary interest and he immediately began planning the first exploration of the Cave of the Winding Stair.

For years stories about the bottomless pit in which Jack Mitchell almost lost his life circulated and grew in the southwest. Finally, in 1949, three daring young men decided to conquer the Cave of the Winding Stair. For hours they toiled deeper and deeper into the unknown blackness—and then—they reached bottom! But, the Cave of the Winding Stair was not about to give up without a struggle. There was still the problem of getting out and here the expedition almost ended in tragedy.

He secured the services of two assistants and considerable equipment. A log was fixed across the passage where it lies to this day. With 1200 feet of manila rope and block and tackle, a three-way pulley was built. By means of this device Mitchell was slowly lowered into the fissure. Too narrow for comfort at the start, the passage widened gradually until Jack



realized that he was suspended in a room whose walls and floor he could not reach with his flashlight beam. Suddenly a jerking halt stopped his downward progress. He shouted, but only garbled echoes of words answered him from above. He learned later that the pulley had jammed!

Minutes turned into hours and he remained helpless, twisting back and forth on the end of the rope, becoming more motion sick with each twist. Above, his partners worked frantically, not daring to fully release the ropes for fear of losing their burden. For hours they got nowhere. Finally, the loop slipped back into place and they pulled up the barely conscious Mitchell.

After that dreadful experience, Mitchell gave up all thought of further exploring that cave, and vividly aware of its danger, ordered its opening concealed.

Edwin Corle, noted California author, was one of the few men who knew of Mitchell's experience and he incorporated a highly imaginative description of that event in his popular book *Desert Country*. Soon Jack was sought out by a veritable horde of would-be cave explorers, some with outlandish equipment. Fame distorted the facts surrounding the cave. Many swore that it was a 3000 foot sheer drop to a river, alternately icy and boiling, with rooms filled with the bodies of pigmies with long red hair covering their bodies. How pigmies got into the story Mitchell was never able to find out, but on several occasions he had to listen patiently to stories of their existence.

With only two exceptions, Mitchell turned all these people away, recognizing their inability to tackle a problem of this magnitude. He allowed a

group of electrical engineers to conduct sonar experiments in the cave during the war and he allowed the members of the Southern California Grotto of the National Speleological Society to explore it.

The N.S.S. was organized some 15 years ago when a group of Washington, D. C., cave explorers joined with a group of spelunkers and speleologists from New England. The Southern California chapter—or Grotto—was one of the newest branches of the organization when Mitchell granted it permission to explore the cave.

It was late on the un auspicious evening of Friday, May 13, 1949, that Pete Neely, a student at Los Angeles City College, Ed Held, a fellow interne in Pasadena, and I arrived at the Providence Mountains. Lacking fourwheel drive which would have enabled us to strike out across the desert, we had decided to pitch camp at the C & K Mine where a poor but passable road came to within a mile of the cave. We had little trouble reaching this goal and in a few minutes we set up our simple dry camp.

The brilliant desert moonlight clearly illuminated the hillsides and slopes, and we were too excited to sleep. The idea came to us that it would be easy to carry our equipment up to the cave during the night thus saving time in the morning.

Our plan to carry the equipment in the cool of night seemed a less brilliant one as we proceeded with the job. Our carbide miners' headlights furnished us with adequate illumination within a cave, but outdoors the shadows cast by the moon made the rocky ridges interminate and the washes bottomless. I was carrying 275 feet of one-inch manila rope and each time we were forced to detour around an outcrop or cliff, it grew heavier.

Finally we had our equipment at the cave. We fixed our ropes in preparation for the morning's descent and then went back to our sleeping bags.

Almost immediately, it seemed, the sun was in our eyes and in a short time we were on our way to the cave. A magnificent view of the entire desert valley below us as far as the Needles and even beyond the Colorado River greeted us on our walk up the hill.

We filled our carbide lamps and slithered through the tiny entrance. At once we could see where the cave received its name, for a steep narrow twisting passage led us to The Fissure, through which we were to descend. Here we secured our ropes and other equipment and made ready for the descent.

Sitting comfortably astride this two-foot-wide crack without evident bottom, we paused a moment to discuss

the situation. It appeared to be an easy chimney climb with little danger, so we decided against the use of safety belay ropes, by which one climber can support another in case of a fall. Instead, we fixed a five-eighths inch manila to Mitchell's log to ease our return.

This type of chimney descent is frequently encountered in caving, and special techniques beyond routine mountaineering methods have been developed for use in such situations. Where ledges or even tiny niches occur in the face of both walls, it is easy to climb with one hand and foot on each side of the chimney, alternately moving the hands and feet. With holds on one side only, both feet are used on that side and counterpressure friction on the opposite wall is applied with the hands, back, or seat, depending on the width of the fissure. Here, where the walls were perpendicular and smooth, we depended entirely upon friction to hold us in place, with hands and feet on one side, and the length of our backs against the other. It requires practice and it is tiring, but works well. It was cool in the cave, but already I had started to perspire, and not entirely because we were entering the unknown.

Less than 70 feet down we came to a ledge where the opposite wall abruptly turned into the ceiling of a fair-sized room about three stories high.

No more chimneying, of course. Our fixed rope was not the right type, or we could have wrapped it around our bodies and rappelled to the floor in a couple of jumps. Instead, using the tiny dripstone ledges for footholds, we went down the rope hand over hand into what we immediately called the Broken Rock Room. Here an upheaval eons ago tossed great limestone slabs together like tumbleweeds. To our left a sheer pit continued downward. We were able to make our way between the boulders and from the dusty slope at the bottom of the pit we saw our first cave formations. There were few stalactites and stalagmites, but flowstone "waterfalls" were numerous.

The passage curved to the right and abruptly ended at a dry pool. Magnificent formations cascaded down a 75 foot chimney above the pool, but we could go no further. Was this all there was to this fabulous cave?

We started back. At the base of the broken rocks I wedged my head and shoulders into a small hole. To my surprise my carbide flame revealed an enlargement beyond. I called to Pete who had started to climb back to the surface.

The path zigzagged for about 50 feet past coral-like dripstone coatings

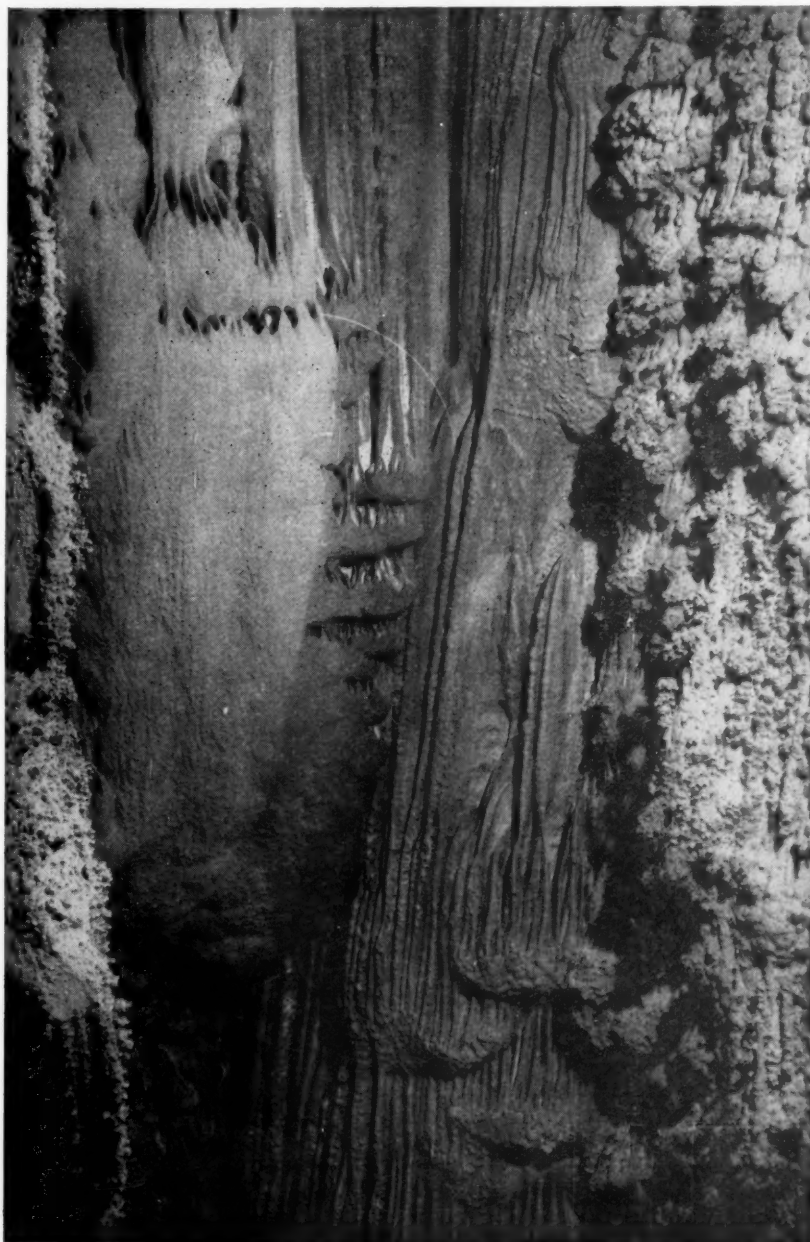
on the high walls and ended in another room with a passage off to the left. We entered this tunnel which soon became a sort of straddle traverse with a seemingly bottomless crevice on one side. Our traverse led us to another chimney. As I looked into the depths below my spare flashlight fell out of my pocket. We heard it hit, and roll a little. I'll get it on the next level, I thought.

Not being as skilled a climber as Pete, I chose a different route where I thought the coral formations would give me better footing. About halfway down I discovered my mistake for the

coral gave way to crystalline formations which were far more delicate and crumbled under the touch of hand or foot. I had only 15 feet to go, but that 15 feet was an eternity of uncertainty as each move caused more material to break underfoot.

Then we came to the Great Pit. One look showed us that routine techniques were now out of the question. Some 20 feet across, our powerful flash beams could not reach the bottom. We dropped rocks. They took three to four seconds to hit, though it seemed 10 times that long waiting there in the dark, already 300 feet below the

Flowstone in the middle level above the dry pools.



surface. There was a short side passage thickly studded with delicate flowerlike crystalline formations, but no route down except the Great Pit.

We might have rappelled, but having no idea what lay below, none of us were anxious to take the chance of ending up in something worse than Mitchell's position. Finally we secured the long climbing rope around a convenient, well wedged rock and Pete tied the nylon safety rope around his waist with a slip-proof bowline knot. Ed braced his feet and got into belay position with the rope half around him.

"On belay!" he called. "Belay on. Climbing," returned Pete, and he was off over the edge, at first finding quite satisfactory holds among the lime nodules on the wall. This was too easy, we thought. Then came what we had feared—an overhang where no wall could be reached.

Undaunted, Pete swung down the climbing rope, hand over hand to the floor of the alcove, a distance of 20 feet. "Off belay," he shouted up, untying. We pulled up the safety rope. I tied in and joined him while he rested and looked over the rest of the pit, still without my flashlight.

Looking down, we could now see the base of the pit six or seven stories below us. The climbing rope was long enough, but we were unsure of the 120 foot safety rope. Pete elected to try anyway, and tied back in.

Holds on this stretch were practically non-existent, the route being over smooth flowstone pillars. The method we used here has no name and would most probably be disowned by our friends of the Sierra Club. By leaning far back, with a good grip on the climbing rope, our feet could exert enough friction on the smooth wall for us to walk down backwards and horizontally, by this cross between rappel and chimney techniques. At any rate, it was effective. In a few minutes, broken only by cries of "Slack!" and "Resting!" came the long-awaited call "I'm down! Off belay." Although we did not know it at the time, Pete had become the first person on record to reach the bottom of the Cave of the Winding Stair.

After a few yells of jubilation over the successful descent from our three, well separated level, I tied in and joined him by the same route.

The base of the pit sloped into a circular room 30 feet across, profusely decorated with flowstone and dripstone, and we continued under a natural bridge to the lowest part of the cave where a series of dry rimstone pools formed the floor in a long room richly draped in formations, including

three solitary stalagmites about 5 feet high. We looked upward for their corresponding stalactites but our flashlight beams were lost before they reached the ceiling. We discovered my flashlight which had bounced once on the lip of the Great Pit, once at its base, and rolled 30 feet. At first glance it appeared surprisingly intact, with only a smashed crystal and bulb, but then I noticed that the entire switch assembly had been neatly sheared off without scratching the case. Nowhere did we find evidence of previous human visits as we traced the room to its end 100 feet away. Satisfied, we

The State of California recently entered escrow for the purchase of Mitchells Caverns from the Jack Mitchell estate. The Cave of the Winding Stair, two miles from the main caverns, is not part of this initial unit of the State Park, but is within the proposed ultimate boundaries of the project.

The State has plans to purchase 30 sections of land in the Providence Mountains, including the highest point—an ancient volcanic plug which, when up-lifted, created spectacular geologic formations underground.

At the present time two State Park Rangers are stationed on the property in order to protect the State's interests from vandalism. The caverns are closed to all visitors and no camping facilities are available at this time. Less than a mile from the cavern headquarters is a relatively level area which has been used for camping in the past.

retraced our steps. Not a large cave, but a challenging one and rewarding with its gloriously bizarre formations.

As is often the case, covering the 70 foot ascent to the overhang ledge was easier than the descent, for now at close range we could make out the tiny holds that make all the difference in the world on a vertical face. Pete practically ran up the face, keeping Ed busy taking in slack rope, and I followed almost as fast in my turn.

The overhang, however, was another matter. Pete nimbly climbed the 20 feet hand over hand, using a wrap-around foot support, and reached the

easier climb beyond in a few minutes. Then it was my turn. I covered the first 10 feet without difficulty but then began to slow up. Each foot, each inch became a struggle, then a torture. My hands began to cramp and I lost my feeble foot support. Just as I reached the upper wall, my arm could no longer hold me. In the moment I could still support my weight, I called up my predicament and was reassured of their ability to hold my weight on the safety rope. A little happier, I called "Falling!" as my fingers gave way.

Thanks to good rope handling above, I fell only about a foot on the springy nylon, and hung while my hands regained a little strength. At five minute intervals I could pull an arm's length up the rope and Pete and Ed took in the slack. After a half hour of this constant squeeze against my lower ribs, I felt a minute hold for my right foot. I may have been happier in my life, but right then I couldn't remember when it might have been. I was up in another 10 minutes and out of the cave in two more hours. We left the ropes in place until the next morning for those eight hours underground had taken a lot out of us.

But had we conquered the cave? Despite the successful descent, we remained doubtful. After all, only two of us had reached its bottom. The question remained debatable until a month later when Pete teamed up with a group from the Sierra Club for a 13-hour trip which found two others reaching the lowest level. At the lowest point, Pete spotted a tiny hole with a strong updraft of air. What lay beyond?

Four months of planning went into our next trip. We were now far beyond the crude techniques used at first. Pete and two rockclimbers placed our newly prepared steel cable ladders in position, and drilled holes for two expansion bolts which, with attached carabiners, would enable a traverse converting the Great Pit into a simple chimney. Then the rest of the party arrived, descended, and Walt Chamberlin and Bill Brown went to work on the hole of the air current. With skill, precision, three sticks of dynamite and a considerable jolt to the eight of us in the cave, a neat manhole was opened. That the last portion of the cave was not important, however, was immediately evident, for a mud floor representing the bottom of the cave showed itself 10 feet below in a small room. Now, finally, with ladders and dynamite, we had conquered the cave. We knew that now no mystery remained in the cavern and we could expect a party of spelunkers of aver-



Pete Neely, (left) at the lowest point in the cave. (Right) Descending into the Broken Rock room.

age experience to make the descent and return in 12 hours.

One danger remains. Many of the readers of this article will ignore the fact that hard work is involved during every minute of the time required even for experienced personnel to descend to the bottom. I cannot emphasize too strongly that this is the most dangerous cave in Southern California, that opportunities to break one's neck with ease exist at every turn. There are many more beautiful caves in California. There are even many unexplored caves in Southern California, some in the same area. I strongly recommend leaving the Winding Stair to the skilled speleologist. If you must visit it, contact the N.S.S., which still conducts periodic scientific expeditions into the cave.

In many ways, this was by no means a typical cave. But then, none of them can really be called typical. Of course, caves of some sort occur in all kinds of rock, but solution caves, like Carls-

bad or the one we explored, occur along joints in limestone, the solution and precipitation of which causes the formation of stalactites, stalagmites, flowstone, crystals, cave pearls and other cave decorations.

No two caves are alike. Horizontal or vertical, long or short, tiny or huge, wet or dry, beautifully decorated or plain, easy or difficult, all are interesting. Some are bone dry, others knee deep in mud. Some have crystal clear underground streams coursing through their depths. Others are completely filled with water throughout their lengths. Few have been completely explored. Many have never been entered. The majority are still undiscovered.

It is difficult to define the psychological factor for the appeal of speleology and spelunking—the science and sport of caving. It's mountaineering in the dark. It's being transported away from everything and everyone that irritates you in the cities. It's the old

pioneer spirit pushing forward into the last frontier of unexplored territory. It's the thrill of conquering something alien and forbidding. It's the curiosity to know what is down that hole or around that corner, a dead end, a mysterious pit, or great natural draperies cascading down from a high ceiling in a photographer's paradise. It's finding strange blind animals, crystals, fossils, Indian relics, underground streams or mudbanks.

The National Speleological Society exists as a central correlating agency and repository of data of the results of investigations by its individual members, and is constantly searching for new caves and facts about them. It is a nonprofit organization devoted to "unlocking the secrets of the netherworld," and has national headquarters in the Star Building, Washington, D.C. Although growing constantly in membership and available information there are still vast areas from which no information has come.

THE *Desert* MAGAZINE CLOSE-UPS

The following note from Dr. Edmund C. Jaeger explains why his monthly "Nature Trails" feature is omitted from this issue of *Desert Magazine*:

"So sorry I could not get my article to you this month but I have been very ill and at present am at Loma Linda (California) Sanitarium. I have two stories about complete and if possible will get them to you later. I miss so much my autumn desert trips. The new station wagon is wonderful in performance and last weekend even though I was very weak I had one of the boys take me out to my beloved Mojave. We got some remarkable pictures of rock wren nests which I hope later to send you."

Dr. Jaeger's many friends and admirers will join with the *Desert Magazine* staff in wishing a speedy recovery to the dean of the desert's Nature writers.

* * *

Cap Smith, author of this month's "Valiant is the Ironwood," was first introduced to *Desert* readers by his wife,

Olga, in her prize winning story in the 1953 Life on the Desert contest.

Smith was born in Clifton, Arizona, where his father was a pioneer peace officer and cattleman. His father later went into mining and here Smith met the boom-camp miners—men who had been at every big strike in the world—returning with fabulous stories of mines and lost mines. Hearing these tales, Smith decided early in life upon a career as a prospector, but his father thought a college education more important and sent him to school in the East. Through the years Smith practiced his profession, engineering, in various parts of the country, but has not lost that yen to prospect.

"I still like to explore the old back trails, visit with old timers and hear about the old times," he explains.

* * *

Dr. William R. Halliday, author of this month's "We Explored the Winding Stair Cave" is a good example of a physician who seeks relaxation in a field completely unrelated to medicine. As a result, he has become known as one of America's leading speleologists—experts in the exploration and study of caves. During his training in chest surgery in several Western cities, and his two tours of duty with the Navy, he has found time to explore some 200 Western caves.

Dr. Halliday has held various official positions with the National Speleological Society and has been chairman

and co-founder of the Society's Southern California, Cascade, Colorado, and Salt Lake City chapters. He is at present a member of the Society's Board of Governors. The exploration of the Cave of the Winding Stair was the first formidable problem attacked by Western speleologists.

* * *

LaVon Teeter, who wrote this month's "Land of the Luminarios," spends all of her free time writing about the Southwest.

"Every time I look around I see a place or a thing or a person that is so interesting I immediately want to write about it and let other people see it too," she declares by way of an explanation for her writing urge. Writing is a hobby with Mrs. Teeter, however, for she is a "full time wife and mother."

* * *

Joseph Schmedding, author of "Christmas in Keams Canyon" in this month's *Desert*, is a man of many talents who has enjoyed a rich and varied life. He arrived in the Southwest from North Carolina as a youth. After a stint as a cowboy and ranch hand he enlisted in the Fourteenth U. S. Cavalry and saw service in the Philippine Islands. In 1912 he returned to the Southwest and became an Indian trader, first at Sanders, Arizona, and later at Keams Canyon where he remained until 1924.

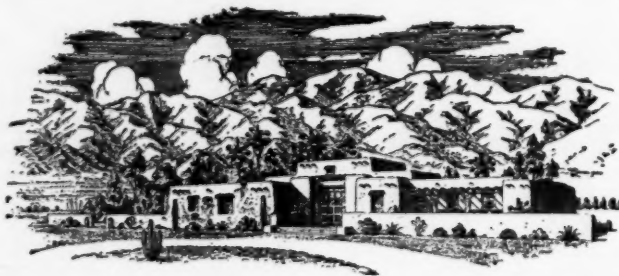
Schmedding spent several years thereafter as a business executive in New York City, Liberia, West Africa, and Havana, Cuba. In 1933 he returned to the United States to make his home at Montrose, California. He recently moved again, this time to Desert Hot Springs, California.

Schmedding has written a number of magazine and newspaper articles. He enjoys music and serious literature, principally early American history.

* * *

Glenn and Martha Vargas, authors of this month's "Saddle Mountain — Collector's Paradise," live in Thermal, California. They pursue occupations that must certainly be the envy of fellow rockhounds—teaching lapidary to adult classes and selling desert display materials wholesale to dealers and artists.

The Vargases also direct field trips into the desert and one of their pet projects is the field trip by bus. Chief advantages of everyone riding together and sharing expenses are the transportation and food cost savings, increased social contacts and elimination of the need for father to drive and mother to cook and tend to camp chores. "This way," say the Vargases, "everyone can dig for rocks—even the bus driver."



You Are Cordially Invited . . .

. . . to visit and enjoy the outstanding exhibit of Southwestern art in the spacious foyers of *Desert Magazine's* beautiful Pueblo along Highway 111 between Palm Springs and Indio, California. The finest work of more than fifty of the Southwest's best known artists make up this ever changing display.

Visitors are always welcome at the admission-free *Desert Magazine* art gallery which is open seven days a week from 9 a.m. to 5 p.m. under the direction of Mora Brown, acting director.

Adjoining the art gallery is the Desert Book and Crafts Shop where the best of current Southwestern books are available for your reading enjoyment. Visitors may browse at will in the restful atmosphere of the gallery and book shop.

Friend or Stranger, you are welcome here.

This ancient Hopi legend, as told to Harry James by one of the elder members of the tribe, will appear in Mr. James' new book, *The Hopi Indians*, to be published next March by Caxton Printers of Caldwell, Idaho.

By HARRY C. JAMES
Illustration by Don Perceval

HALIKSAI, as the Hopi people say for "once upon a time," there lived at the Hopi Indian village of Oraibi a man whose real name is now completely forgotten. He is remembered only as The-Man-Who-Laughed-Too-Much.

This man was a great storyteller and he laughed and he laughed all the time. He was very popular with the boys of the village and all too frequently Lololomi, the old village chief, had to break up gay meetings in the man's home and force the boys to leave to attend rehearsals of dance ceremonies in the underground kiva meeting-place.

Since his father's death, Honau, nephew of Lololomi and one of the most promising boys in all Oraibi, had been spending more and more time in the company of The-Man-Who-Laughed-Too-Much. Time after time Lololomi pleaded with the boy to find other friends, to work harder in the fields so that his mother and two younger sisters would have ample food for the long winter months, and to spend more time with the chiefs in the kiva and less time with The-Man-Who-Laughed-Too-Much.

"In a few years I shall be gone from Oraibi and you will be the young man who should be one of our leading chiefs, the wise head of your family living the Hopi life in the Hopi way with dignity."

But the words of the old chief were in vain. He was an old man who seldom smiled. The-Man-Who-Laughed-Too-Much was a merry companion. It was much more fun for Honau to listen to the latter's wonderful stories than to hear Lololomi recount the endless religious traditions of the Hopi tribe.

One day The-Man-Who-Laughed-Too-Much organized a rabbit hunt among the boys. He particularly urged Honau to go with them, but that day Honau's mother, her brothers and the old chief had all demanded that Honau spend the day in the family corn field. There was much weeding to be done if the crop was to be saved for the year.

Honau went early to the fields and he was hard at work with his heavy hoe when The-Man-Who-Laughed-

The Man Who



Laughed Too Much

Too-Much and a half dozen Oraibi boys came by. They were all carrying boomerang-like Hopi rabbit sticks. They stopped and watched Honau as he sweated in the sun.

"Come on with us, Honau! The weeds can be killed tomorrow. Old Lololomi is not your father. You are a young man. You do not have to do what he says. Soon they will have you grinding corn like a woman. Come hunting with us like a man!"

The boys' jeering tone then changed to one of friendly urging—they would have great luck and his mother would be delighted to have good fat rabbits to cook.

Honau threw down his hoe and joined them.

It was dark when they returned to Oraibi. In the darkness The-Man-Who-Laughed-Too-Much distracted the boys with his silly talk as they divided up the rabbits they had killed. When the boys got home they discovered, as usual, that The-Man-Who-Laughed-Too-Much kept the best and fattest rabbits for himself and that they again

had the little ones that were hardly more than skin and bones.

As Honau entered his house his mother and his sisters looked at him with sad eyes but they said nothing. The evening meal had been saved for his return. They ate in silence—Honau from his sense of guilt, the others because of their heavy hearts at knowing that he had again deserted his trust to join the rabbit hunt of The-Man-Who-Laughed-Too-Much.

Some few days later the people of Oraibi harvested their small but precious crop of peaches. They split and pitted them and spread them to dry on the flat rocks near the western edge of the mesa. That evening Chief Lololomi went from house to house, appointing older boys to sleep out by the drying peaches as a night guard during the time it would take to dry them thoroughly.

"Honau, tonight you will sleep there with two other boys to guard the peaches from the Apaches."

Honau did not dare to say no to the old man, but before dark he went to

the nouse of The-Man-Who-Laughed-Too-Much to learn what other boys had been selected. He found most of the older boys of the village there, and also Lololomi.

The-Man-Who-Laughed-Too-Much had planned a little feast for the boys this particular night. Two of his water-melons had ripened early and he was going to tell them one of his funniest stories, the one about a raven and a coyote. It was obvious that the boys did not want to guard the peaches and miss the fun.

Lololomi turned to The-Man-Who-Laughed-Too-Much, "You are like a witch. These boys look more and more to you for advice and not to their proper religious leaders and to their village chiefs. You are destroying them with your foolish laughter and your silly stories."

At this moment the old man saw Honau join the group. "You, Honau, pick two boys and come with me to the peaches."

The old man's eyes were aflame and he spoke with such force and passion that Honau could not refuse. With his eyes on the ground he named two of his friends.

The old man led them off to the mesa edge, but not before The-Man-Who-Laughed-Too-Much jeered, "Oh, go on—you are the one who tells silly stories. The Apaches never come to the Hopis nowadays. None of us has ever seen an Apache here except to see the great Snake Ceremony. The peaches do not need to be guarded."

Laughter and jeering remarks followed the little group to the flat rocks where the peaches were spread. Lololomi showed the boys where they could roll up in their blankets and be sheltered from the wind. Then he left them to their long vigil.

As the night wore on the three boys could see the warm light of the fire through the small window of the house of The-Man-Who-Laughed-Too-Much. Occasionally when the door was opened they could hear the laughter of the group inside. It grew colder and colder. They were miserable. Honau especially could not help but think how warm and comfortable it must be inside.

"How foolish we are to stay here in the cold! There will be no Apaches."

He strode off and the other two boys laughed, threw off their blankets and followed him.

Inside the house there was hilarity. The-Man-Who-Laughed-Too-Much was delighted that they had come. Places were found for them by the fire. Food was set before them. The gay host launched into his long and hilarious account of the old Raven and

the silly Coyote. When the long story finally ended one of the boys called out, "Show us how Chief Lololomi dances the Eagle Dance."

The-Man-Who-Laughed-Too-Much jumped up and began to imitate in cruel burlesque the old chief's participation in the Hopi Eagle Dance. For a moment the group was shocked by such an affront to the dignity of the village chief, but the man's antics were so skillful that they could not restrain themselves. The room rocked with laughter. They did not hear a piercing scream that cut through the night air or the muffled cries of two little girls.

An Apache raiding party had come to Oraibi. It found the peaches quite unguarded. Emboldened by their easy entry, the Apaches decided to take back to their villages some Hopi captives as slaves. The mother of Honau was killed when she resisted them as they carried off her two little girls. Her scream alerted the village, but the laughter of the boys had drowned out the alarm.

They knew nothing of what was happening until the door was thrust open violently and Chief Lololomi was in the center of the room, his eyes ablaze.

"You boys come at once. The Apaches are here. Honau, your mother is dead—your sisters have been taken."

The boys followed the old man, who carried an ancient stone hammer in his hand. They dashed for their homes for such weapons as they could find.

The Apaches had been cornered in an angle of the dance plaza near the chief's house. One of them had an old gun, others were armed with knives and two of the small party of about a dozen had heavy bows and arrows. They held the two small Hopi girls in front of them and threatened to kill the children if the Hopis advanced.

With hurried words old Lololomi gave his directions — they must do everything possible to save the children. As he and the war chiefs gave the word, the Hopis charged the Apaches. In spite of his many years the old chief dashed in first and, fearless of slashing Apache knives, he seized the two little girls and tore them free. As he turned to carry them to safety he was cut viciously on arms and back. He again turned and waving his storied hammer high above his head once more rushed into the melee.

Although the Apaches fought desperately, the man with the gun was so quickly overpowered that he was unable to fire a single shot. As the conflict continued more and more Hopi men joined in and soon the Apaches were hopelessly outnumbered. At a

word from their leader they made a desperate dash for freedom and in complete rout they disappeared over the mesa edge, dropping even the two bags of partially dried peaches which they had secured.

Honau led his two little sisters home and saw his mother lying dead. Angry tears filled his eyes and a fierce resentment gripped his heart. He dashed out of the house and ran to the home of Chief Lololomi.

The old chief looked at the angry boy and said simply, "Come, let us find him."

Among the groups of men in the streets talking about the raid there was no sign of The-Man-Who-Laughed-Too-Much. Then they went to his house and when they opened the door he did not seem to be there. Lololomi and Honau searched, and other men and boys joined them. Finally, in a small dark room where the corn was stored they found him hiding under a pile of old clothing that had belonged to his mother. When they pulled the old clothing from him he screamed for mercy for he thought they were Apaches. Then men and the boys laughed at him with contempt but this time The-Man-Who-Laughed-Too-Much did not laugh.

Honau looked on him with fierce scorn. How could he ever have enjoyed being with this man? The thought of his dead mother overwhelmed him. One of the boys was still carrying a knife which had been dropped by one of the Apaches. Honau grabbed it and made a savage strike at the cowering Man-Who-Laughed-Too-Much but the old chief was too fast for him and struck the knife from his hand.

"That is not the Hopi way, my son. The old men of the village will meet together at once and decide upon a proper punishment for him."

The following night the boys were all down in the kivas with the men of the village but The-Man-Who-Laughed-Too-Much was elsewhere, dressed in woman's clothes and grinding cornmeal like a woman. This was the punishment that the chiefs had determined for him. He was no longer called The-Man-Who-Laughed-Too-Much and as long as he lived he wore woman's clothes and did women's work. And whenever any of the boys saw him they could not help remembering how he hid under his mother's old clothes and how he howled with fright when they began uncovering him. Then they would have to put their hands over their mouths to hide their laughter—which is what all polite Hopis do when they laugh out loud.

HOME ON THE DESERT

"All This and Christmas too"

By RUTH REYNOLDS

HERE IN THE Desert Southwest December brings no year's-end melancholy — only tranquillity and, to the home on the desert, a fine display of color and winter greenery.

December almost defies the year to die at all. Now the myriads of green-foliaged pyracanthas and cotoneasters are decked with their red or orange-red berries, the poinsettias are blooming in sheltered nooks and the ornamental orange trees are hung with their fruit.

Now the days invite us to bask in the sun in the patio or drive far into the open desert where quietness falls like a benediction on the spirit. Now come those evenings when the sunset diffuses a mauve-pink radiance over the valley and mountains — and the desert repays us a hundredfold for any lost December pleasures we may once have had, like first snowfalls and white Christmases.

As pleasant as these are to remember, I am inclined to forget them and, with my heart at home in the desert, marvel, "All this and Christmas too," for Christmas comes as surely and can be as merry here as anywhere, and as traditional — with only the "sleigh-bells-in-the-snow" replaced by the sunshine and starlight here where the tradition of outdoor living prevails at this time of year, where if there are fewer yule logs crackling indoors there are more bright-berried shrubs and living Christmas trees outdoors that are decorative by day and ideally suited for lighting effects by night.

Here in Tucson this "lighting up" is town-wide and ranges from a single arborvitae outlined in colored lights to Christmas - scene extravaganzas. Many of these are, of course, very striking and beautiful, but the luminaire, a lighted candle anchored in sand in a common paper bag, gives, I think, the loveliest light of all, and the one most likely to "light a pathway for the Christ child" as it is supposed to do according to legend.

The things we used to do and the fun we had when the children were at home! And the things we will do and the fun we will have when the children

The desert Christmas may not be a white one, but the Yule season is nonetheless a traditionally joyous — and busy — holiday. Nature compensates for its lack of snow by providing warm, bright days and stary evenings. Ruth Reynolds tells of her Christmas plans and the work and happiness that lie ahead—decorating, candy making, cooking the roast turkey and transplanting her Christmas gift plants.

and their children come home for the holidays!

This year, with only Ted and I at home and no relatives coming from the east, how much time I shall have!

At least that's what I tell myself now. Later, like everyone else, I shall probably ask, "Where did the time go?"

Not into housework and cooking, for I have the usual number of work-saving gadgets and appliances, and I am fast becoming a devotee of packaged and processed and frozen foods that are so time saving. Among the newer frozen foods that appeal to me are cranberry relish and oyster stew. The relish — cranberry with orange overtones—is almost as good as home-made. The stew could stand a few more oysters but it makes a fine Christmas Eve supper dish—if you're saving up for roast turkey next day.

Turkeys are so improved, processed and sized that there is small chance of making a wrong choice, but I find the frozen ones—small or medium—particularly good for broiling in the broiler or outdoors on the charcoal brazier. I have the butcher saw the main or middle part of the frozen turkey crosswise into inch - and - a - half slices. I keep them frozen and broil them, salted and buttered, as needed. The tag ends and giblets usually end up in a stew which offers endless possibilities—from dumplings to turkey-vegetable soup.

These frozen turkey slices are nice for picnic broiling too at this time of year and are less expensive than steaks. I would not, of course, suggest them as a departure from roast turkey for

Christmas dinner. There are things from which we do not easily depart, and roast turkey is one of them.

A few hours of my spare time must go into candy making, limited now to Whipped Cream Caramels. Long-time favorites of all the family, they still must be made, wrapped, packaged and mailed.

A few should be saved for guests who drop in but they are too tempting to save well and too rich to be compatible with slim waistlines except those of young or very active people, although I now substitute evaporated milk for the two cups of whipping cream originally called for in the recipe.

Into the Whipped Cream Caramels go: two cups of evaporated milk, two cups of granulated sugar, one-half pound butter or margarine and one and three-fourths cups (one bottle) of dark corn syrup.

Withholding one cup of the milk, I put all the other ingredients into a large kettle and bring the mixture to a boil. Then I dribble in the second cup of milk, reduce the heat and stir as the boiling continues for—and here's the catch — nearly an hour. A few short time-outs from stirring do no harm, however, and allow me to have ready two ungreased eight-inch square pans lined with pecan meats over which I pour the hot mixture when it forms a firm—not hard—ball in water.

After it cools in the pans—preferably over night—it is ready to be cut into one-inch squares and wrapped individually in waxed paper or foil—with the aid, perhaps, of a helpful husband. The recipe makes two pounds of caramels and, unlike many homemade candies, they keep fresh indefinitely.

Time spent in Christmas shopping should be pleasantly spent, and usually is I think. But to make sure, I plan to browse some among plants and things at the nurseries. But Heaven help me if Ted's gift from me should turn out to be an enormous bale of peat moss! Just what I've always wanted, and just what I shall need most for transplanting into the garden any plants I might get for Christmas.

A camellia would be lovely, and camellias can be grown here. Their aversion to our alkaline soil can be

overcome by growing them almost entirely in peat moss and acid reacting fertilizers. A little sulphur mixed with a few shovels of topsoil and one of well rotted manure and enough peat moss to fill a two by two foot hole should get a camellia off to a good start in the garden. It requires partial shade, good drainage and an always-moist soil. Its leaves should be washed frequently with a spray from the hose as they like moisture not present in desert air.

The poinsettia is, of course, the plant most often given at Christmas. It too can be transferred to the garden eventually. Watered well and placed well away from sunny windows or strong artificial light it can be kept in healthy bloom indoors for some time.

When its leaves fall it is ready to be cut back — each stem to about two "eyes"—and stored in a cool place, with watering reduced to a minimum.

In the spring it can be planted outdoors—plunged, in its own pot, into ground that has been acidified, and left to grow there until next winter, or it can be transplanted into a sunny spot in the garden. If there is too much danger of frost it might be best to let the plant grow there through

spring and summer and then make cuttings from it and pot them for blooms next Christmas.

For an easy-to-grow plant I'd choose a pyracantha. I'd choose it for other reasons too. It is a showy, fast growing evergreen — a firethorn of many varieties. Besides the *occinea*, the hardiest species which without drastic pruning may reach a height of 20 feet, there are other types more suited to espaliering and conforming to small areas. Among these are the *koidzumii*, with large scarlet berries in clusters, and the *k. stribling* with red berries continuous along the branches. The *lalandii* is a vigorous, orange-berried type.

Although pyracanthas grow in almost any soil, they respond beautifully to adequate fertilizing and watering. They should be pruned regularly after shedding their berries, and as berries are borne on second year wood, the branches should be cut back to the laterals, removing as much old and leaving as much new wood as possible.

But time enough for pruning and for renewing other garden activities after December has led us to the threshold of a new year, too swiftly, perhaps, after all.

LETTERS

More on Basket Weavers . . .

Covelo, California

Desert:

Continuing R. B. Bernard's comments on basket weavers (*Desert*, Sept. '55) . . .

I have been a resident of Mendocino County, California, since 1903. There are still many good Pomo basket weavers in the Ukiah, Hopland, Redwood Valley and Manchester areas. The Pomo Mothers' Club of Ukiah is greatly interested in fostering the art of basketry and at least two of its members have a backlog of orders for typical weaves and patterns from the Smithsonian and other museums.

Mrs. Elsie Allen and her mother, Annie Burke, make many of the large winnowers, storage baskets and trinket baskets. They go far afield for their materials, but cultivation has destroyed much of the slough grasses and other materials used in their art.

Lake County has many fine weavers left, but I doubt if any are still making the solid feather baskets. This *tsapopekah* is decorated with the green head feathers of the mallard duck.

The Upper and Lower Klamath and Hoopa tribes of Northern California are known for their superlative baskets. In my opinion they crowd the Pomos for beauty and workmanship. Living along rivers as they do, the Klamaths and Hoopas use spruce roots, five-finger fern stems and basket grass which is first died with alder bark to an orange-red color.

These Indians used baskets for squaw caps which were originally widow's caps. After a widow's hair was cut at the neckline, a pine pitch lined cap was placed on the head and a vow taken to wear this cap in mourning for one year. Sometimes porcupine quills were inserted as ornaments and these caps were colored bright yellow with wolf moss. Patterns are most unusual. One cap I saw had a pattern in the crown like that used by the Erie Indians. In the early days of the Hudson Bay Co., Erie Indians came to the North country as canoemen. It is possible that a straggler wandered down to California and left his crest, interlaced claws, to be copied by the natives here.

Still another tribe of fine weavers is the Panamint Shoshones from the Death Valley area. I rank them with the Pomos.

EDITH V. A. MURPHEY

Desert Pictures Are Valuable

Do you have a photograph of desert life that you are proud of? Perhaps it is the one you took last Christmas at the Indian dance, or last month at the Death Valley Encampment, or last week when the first signs of a new winter appeared on the desert. You can share these photographs with your friends and neighbors in the Southwest by submitting them to our picture of the month contest. Cash prizes are given for winning entries.

Entries for the December contest must be sent to the Desert Magazine office, Palm Desert, California, and postmarked not later than December 18. Winning prints will appear in the February issue. Pictures which arrive too late for one contest are held over for the next month. First prize is \$10; second prize \$5. For non-winning pictures accepted for publication \$3 each will be paid.

HERE ARE THE RULES

- 1—Prints for monthly contests must be black and white, 5x7 or larger, printed on glossy paper.
- 2—Each photograph submitted should be fully labeled as to subject, time and place. Also technical data: camera, shutter speed, hour of day, etc.
- 3—PRINTS WILL BE RETURNED WHEN RETURN POSTAGE IS ENCLOSED.
- 4—All entries must be in the Desert Magazine office by the 20th of the contest month.
- 5—Contests are open to both amateur and professional photographers. Desert Magazine requires first publication rights only of prize winning pictures.
- 6—Time and place of photograph are immaterial, except that it must be from the desert Southwest.
- 7—Judges will be selected from Desert's editorial staff, and awards will be made immediately after the close of the contest each month.

Address All Entries to Photo Editor

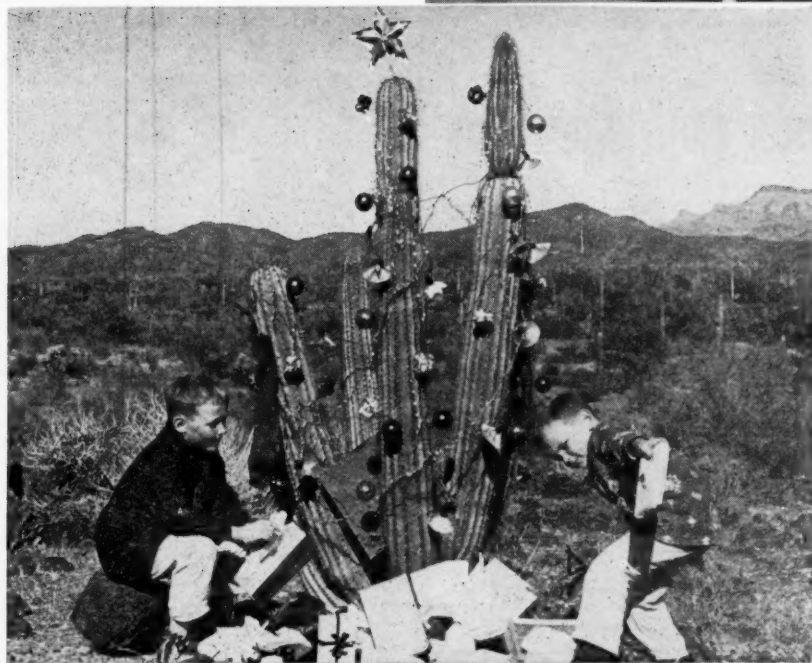
The Desert Magazine

PALM DESERT, CALIFORNIA

Pictures of the Month

Desert Friend

This little girl has discovered that the horned toad is a curious and harmless desert friend. Robert M. Riddell, Jr., of Tucson, Arizona, won first prize in this month's contest with this charming photograph using a Rolleicord V camera at 1/25, f:11, Super XX film.



Organ Pipe Christmas

Second prize winner in this month's contest is Louie Kirk's photograph of his sons Bruce and Wayne distributing gifts on Christmas Day, 1954. The Kirks found themselves in Organ Pipe National Monument—hundreds of miles from the snow and fir trees of their Ashford, Washington, home—but, undaunted, they decorated a young cactus and achieved "Christmas with a desert flavor." Exposure data: Leica camera; Plus X film; f/100 at f:5.6.

Here and There on the Desert . . .

ARIZONA

Rabies Source Studied . . .

PORTAL—The U. S. Public Health Service, long suspecting that rabid bats from Mexico may be spreading the disease in the United States, has established a research station in the Chiricahua Mountains to trap and inspect the bats that fly across the border. Mexican authorities report that rabid bats have been found in Northern Mexico.—*Phoenix Gazette*



**Stove Pipe Wells Hotel
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California**

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**BURRO-FLAPJACK
CONTEST**

Stove Pipe Wells Hotel was until his death in 1950 owned and operated by George Palmer Putnam, renowned author and explorer. It continues under the personal management of Mrs. George Palmer Putnam.

Season: October 1 to June 1

River Suit Delayed . . .

PHOENIX—The death of George I. Haight, Special Master in the Arizona-California water suit, has delayed U. S. Supreme Court action on the case. Simon H. Rifkind, a New York lawyer and former federal judge, was appointed new special master to replace Haight. The suit involves more than a score of briefs and arguments between the two states. Arizona wants to restrict California to 4,400,000 acre-feet of water while California claims 5,360,000 acre-feet.—*Phoenix Gazette*

. . . .

New Sunset Crater Road . . .

SUNSET CRATER—The new entrance road to Sunset Crater National Monument was opened recently. The hard surfaced route leaves Highway 89 a short distance north of the Highway Department Maintenance camp, 14 miles north of Flagstaff. The route goes through five miles of cinder hills and parks to the boundary of the monument and about one more mile inside the monument to the base of the crater.—*Coconino Sun*

Indians Defy State . . .

PHOENIX—The Gila River Pima-Maricopa Indian community will go ahead with plans to drill an irrigation well on its tribal lands, despite state threats of legal action to halt the well under the groundwater code. Approval of the well drilling has been granted by the Secretary of the Interior, according to Jay R. Morago, tribal governor. The Pima-Maricopa tribesmen are relying on water rights that they claim go back "to time immemorial" as opposed to the rights claimed under the recent state groundwater code which prohibits the drilling of irrigation wells on lands declared critical groundwater areas.—*Phoenix Gazette*

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Bird Refuge Opens . . .

FLAGSTAFF—A 1000 acre bird sanctuary was dedicated on land four and one-half miles northeast of Flagstaff by the National Forest Service. The sanctuary is sponsored by the Alpine Garden Club of Flagstaff. Members have developed nature trails and posted signs identifying plants.—*Phoenix Gazette*

. . . .

Scrub Growth Depletes Range . . .

TOMBSTONE—Economic value of over 13,000,000 acres of Arizona grazing, timber and watershed lands is being steadily decreased by the uncontrolled growth of scrubby pinyon pine, juniper and other woody plants, the Arizona Farm Bureau Federation declared.—*Tombstone Epitaph*

'Tis not the weight of jewel or plate,
Or the fondle of silk and fur;
'Tis the spirit in which the gift is rich,
As the gifts of the wise ones were;
And we are not told whose gift was gold
Or whose was the gift of myrrh.

—Edmund Vance Cooke



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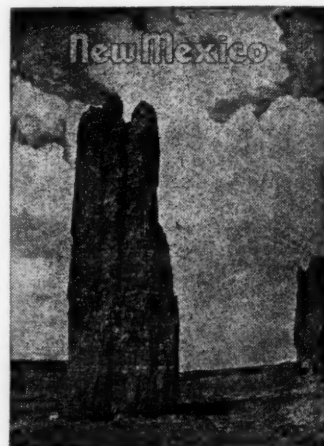
Desert

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DESERT MAGAZINE

CALIFORNIA

Advocates Desert County . . .

MOJAVE — Judge Jack Werner, Ridgecrest Justice of the Peace, asked Mojave and other Kern County desert communities to study feasibility of forming a new county that would include the desert sectors of the eastern part of Kern. Judge Werner recently told a Mojave audience that the Kern County seat, Bakersfield, is too far from desert communities for convenient transaction of county business. The long distance from the seat of government makes it difficult for citizens to represent themselves at meetings of the board of supervisors and county commissions, he said. — *Lancaster Ledger-Gazette*

"Wild" Horses Are Strays . . .

ROSAMOND—Reports of a large wild horse herd roaming the desert have attracted scores of hunters to the Rosamond area, but the herd is neither large nor made up of true wild horses asserts Rawley Duntley, local rancher. The horses being hunted are the remainder of a herd formerly owned by Duntley and sold in 1950. Duntley reports that he recently found the remains of a dozen horses which were shot and dressed out to be sold by the hunters for dog food.—*Boron Enterprise*



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Riverside, Calif.

Charcoal Kilns Monument . . .

INYO — Charcoal Kilns, the beehive-shaped kilns made of adobe brick and used to convert timber into charcoal for the furnaces of the Cerro Gordo mines high in the Inyo Moun-

tains, have been dedicated as State historical monuments. The Kilns were operated over 80 years ago on the shores of the now-dry Owens Lake near the point where Cottonwood Creek emerges from the mountains.—*Inyo Register*

Desert Quiz:

You do not have to have an automobile and a vacation to become better acquainted with that fascinating land known as the Great American Desert. The Desert Quiz will take you to many places, and give you a glimpse of the historical background and of the life and lore of the desert country today. The questions cover a wide range of subjects. A score of 12 to 14 is fair, 15 to 17 is good, and 18 or over excellent. The answers are on page 38.

- 1—The Chuckawalla is a — Lizard Bird Shrub Rodent
- 2—The Mormons originally went to Utah to—Seek gold..... Hunt buffalo..... Trap beaver..... Escape persecution.....
- 3—If you found the fossil imprint of a butterfly in a slab of limestone, the scientist most directly concerned with this phenomenon would be a—Meteorologist..... Archeologist..... Paleontologist..... Mineralogist
- 4—The annual Death Valley Encampment is sponsored by — Kern County Pioneers..... Death Valley Scouts..... China Lake Historical Society..... Death Valley '49ers.....
- 5—When motoring from Albuquerque to Taos, New Mexico, the principal town you would pass through is—Carlsbad..... Santa Fe..... Gallup..... Tucumcari.....
- 6—The most widely known participant in the "Lincoln County War" in New Mexico was—Wyatt Earp..... Billy the Kid..... Kit Carson..... Geronimo.....
- 7—The piki made by the Hopi Indians is a—Drink..... Food..... Medicine..... Cure for snakebites.....
- 8—The name John D. Lee was associated with—The Mountain Meadows Massacre..... The discovery of Meteor Crater..... The Gadsden Purchase..... First trip through the Grand Canyon of the Colorado by boat.....
- 9—Trona, California, is best known for its production of—Gold..... Chemicals..... Gypsum..... Quicksilver.....
- 10—The Dons Club, dedicated to preserving the lore and traditions of the Southwest, has headquarters at—Los Angeles..... Reno..... Santa Fe..... Phoenix.....
- 11—Bright Angel Trail leads to—The bottom of Grand Canyon..... Top of Mt. Whitney..... Rainbow Natural Bridge..... Valley of Fire in Nevada.....
- 12—The Southwestern custom of lighting Luminarios on Christmas eve was handed down from the—Mormons..... Indians..... Mexicans..... Gold Seekers of '49.....
- 13—Hohokam is the name given the prehistoric people who once occupied—Grand Canyon..... Escalante Desert..... Salt River Valley in Arizona..... Pyramid Lake area in Nevada.....
- 14—The hardest of the following minerals is—Calcite..... Fluorite..... Feldspar..... Topaz.....
- 15—Deglet Noor is the name of—A species of date grown in the Southwest..... An Indian tribe..... A mountain range in Utah..... A famous Navajo medicine man.....
- 16—A miner with a cinnabar deposit would produce—Tin..... Aluminum..... Platinum..... Quicksilver.....
- 17—The Gila River flows westward into the—Salton Sea..... Colorado River..... Rio Grande..... Great Salt Lake.....
- 18—If you wanted to visit Pyramid Lake you would go to—Arizona..... Utah..... Nevada..... New Mexico.....
- 19—Tallest among the cacti of the Great American desert is the — Saguaro..... Organ Pipe..... Cholla..... Prickly Pear.....
- 20—Datura or wild Jimson found on the desert is best known for its—Sweet aroma..... Narcotic effect..... Gorgeous red blossoms..... Food value.....

THE DESERT TRADING POST

Classified Advertising in This Section Costs 12c a Word, \$2.00 Minimum Per Issue

INDIAN GOODS

5 FINE ANCIENT Indian arrowheads, \$2. Flint eagle ceremonial, \$2. Perfect Folsome, \$5. Spearhead, \$1. List Free. Lear's Glenwood, Arkansas.

BEAUTIFUL TURQUOISE and Silver jewelry by the Pueblo Tribes — Bracelets, earrings and necklaces priced from \$2.50 to \$100.00. Authentic Navajo rugs 18" x 36" to 50" x 54" and priced from \$8.50 to \$70.00. The Bradleys, 4639 Crenshaw Blvd., Los Angeles 43, California.

SIX FINE Ancient Indian Arrowheads—\$2.00. Fine granite Tomahawk—\$2.10. Effigy pipe \$4.00. Perfect flint thunderbird—\$3.00. Flint fish hook—\$3.00. List free. Arrowhead, Box 5283, Indianapolis, Indiana.

BEAUTIFUL OBSIDIAN arrowheads from the Klamath Country. Black \$1.00; gray \$1.50; translucent \$2.00; profusely illustrated catalog 50c. Moise Penning, 158 Dolorosa, San Lorenzo, California.

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OVER 600 fine old baskets. Many rare Navajo rugs, both old and new, Bayeta-Germantown. Artifacts, gems, and fine Indian jewelry. Buffalo Trading Post, Highway 18, Apple Valley, California.

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COACHELLA VALLEY—80 acre Produce and Date Ranch, showing \$20,000 Net. Write Ronald Johnson, Box 162, Thermal, California.

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VIEW LOTS — Palm Desert Heights. Just above Desert Magazine block. Near Shadow Mountain Club, school, church, market, bus. 70x100, \$1200 up. Paved, gas, elec., water. Restricted. For brochure write Box 65, Palm Desert, California.

WANT WELL DRILLED—Ocotillo Wells, Highway 78, San Diego County, will deed free 50 acres choice subdivision land to responsible party who will drill well on same and sell water to community. Rogers, Box 86, Del Mar, California.

MISCELLANEOUS

DESERT TEA. One pound one dollar postpaid. Greasewood Greenhouses, Lenwood, Barstow, California.

GHOST TOWN ITEMS: Sun-colored glass, amethyst to royal purple; ghost railroads materials, tickets; limited odd items from camps of the '60s. Write your interest—Box 64-D, Smith, Nevada.

LADY GODIVA "The World's Finest Beautifier." For women who wish to become beautiful, for women who wish to remain beautiful. An outstanding desert cream. For information, write or call Lola Barnes, 963 N. Oakland, Pasadena 6, Calif., or phone SYcamore 4-2378.

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URANIUM MAP of Southwest. Geiger counters, scintillators, snooper, \$29.95 up. Free catalog, or better, send \$1.00 for authentic uranium map of Southwest Desert and catalog. Harry's Geiger Counters, 360 So. Hawthorne Blvd., Hawthorne, California.

INDIAN PHONOGRAPH Records. New Singers! Latest Songs! As well as many old-time songs and chants—all completely authentic. Write for free record list No. 5. Canyon Records, 834 N. 7th Avenue, Phoenix, Arizona.

TELEPHONE REPRESENTATION in Taft, for Uranium Crews; Companies and Suppliers. Taft Telephone Answering Service, Hotel Savoy Lobby, Taft, California. 6-6881.

OLD WALL TELEPHONES—oak cabinet, good condition. Regular \$15—now \$9.95. Two \$18.50. Six \$50.00. Tontz's, Dept. 31, Elsinore, California.

SILVERY DESERT HOLLY plants: One dollar each postpaid. Greasewood Greenhouses, Lenwood, Barstow, California.

BUILD YOUR OWN real swimming pool! Fun for the entire family! Easy plan and instructions, only \$1.00. Delta Pools, Box 604, Stockton, California.

HAVE REAL FUN with desert gems, minerals and rocks. The rockhound's how-to-do-it magazine tells how. One year (12 issues) only \$3.00. Sample 25c. Gems and Minerals, Dept. J10, Palmdale, California.

JEB GROUNDRAIL Scintillation counter with 2½ x 1½ crystal. Plus JEB Audio Signaler. Super sensitive. Very little used. Owner now confined to wheel chair. Original cost almost \$700. Will sacrifice for \$395. Fully guaranteed. Box 984, Tehachapi, Calif. Phone TAYlor 2-4840.

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BUY SURPLUS DIRECT from government at tremendous savings. Farm tools, machinery, feed, truck, jeep, tractor. Hundreds of others. List \$1.00. Box 169-Daa East Hartford 8, Connecticut.

WANTED—Frontier or old revolver for Desert reader's collection. In good condition and reasonable. Roy W. Guerin, 2190 Cheryl Way, San Jose, California.

HAND-MADE VIOLINS — visit the old Desert Violin Maker on Sunrise Claim Summit Diggins. Hand-made Stradivarius models, fine rich mellow tones. Made of beautiful curly maple and spruce woods. Violins repaired. Write George Blatt, Box 213, Johannesburg, California.

THE HAPPY CHILD receives letters and gifts—25c per letter, 75c per gift. Jean, 12761 Mitchell Ave., Los Angeles 66, California.

SECTIONIZED COUNTY MAPS — San Bernardino \$1; Riverside \$1; Imperial 50c; San Diego 50c; Inyo 75c; other California counties \$1.25 each. Nevada counties \$1 each. Uranium location maps: southwestern states \$1; Northwestern states \$1.50; California \$1.50; Four Corners area \$1. Westwide Maps Co., 114 W. Third St., Los Angeles.

PAN GOLD: \$1 for 75 panning areas in 25 California counties. Geological formations, elevations, pertinent notes. Panning pans \$2.75, \$2.25. Leather nugget and dust poke \$1. Fred Mark, Box 801, Ojai, California.

• • •

Dam Contract To Be Let . . .

BLYTHE — The Federal government is expected to award contracts for the Palo Verde diversion dam on the Colorado River by Jan. 1, 1956. Cost of the project has been placed at \$4,538,000 and construction will require two years.—*Palo Verde Valley Times*

NEVADA

New Land Racket Hit . . .

LAS VEGAS—Rep. Clifton Young has asked the Bureau of Land Management to look into alleged new frauds in the land promotion business. The new racket involves the so-called Pittman Act, passed in 1919 and applicable only in Nevada. Under this act a qualified person can apply for permission to explore for water and develop agriculture on four sections or 2560 acres of public domain. If he succeeds in locating water and puts 20 acres under cultivation, he is then entitled to apply to the government for one section or 640 acres. A number of Clark County citizens have inquired about the legality and soundness of offers made to them to apparently have locators file for land in their behalf under the act. — *Nevada State Journal*

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Pyramid Lake Doomed . . .

RENO — Congress is expected to enact legislation for the \$43,500,000 Washoe Reclamation Project next year intended to guarantee more flood control, irrigation water and electric power for western Nevada. One of the victims of the project will be Pyramid Lake (*Desert*, Nov. '54) which is now dropping three and one-half feet each year as a result of the Newlands Project which irrigates the Fallon area by draining water from the Lake's source. The Washoe Project calls for the upstream storage of virtually all of the flood water and the spring runoff that formerly discharged into the lake. It may take as long as 80 years for the lake to become completely dry. — *Nevada State Journal*

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Personal Incomes Highest . . .

WASHINGTON, D. C. — Nevada residents had the biggest percentage increase in their incomes last year and enjoyed the highest income per man, woman and child of any state in the union. The state's per capita income was \$2414 compared to the national average of \$1770. — *Salt Lake Tribune*



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Local Control for Indians . . .

CARSON CITY—Nine of Nevada's 17 counties will be charged with jurisdiction of Indians in all civil and criminal matters. This formerly was the duty of the Federal government, but Congress recently shifted it to the states. The act provides, however, that counties can appeal to the governor for exception from this law. Counties obtaining exception included Washoe, Humboldt, Clark, Elko, Pershing, Churchill, Lyon and Mineral. — *Nevada State Journal*

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Indian Claims Game Rights . . .

WELLS—Indian Joe E. Andreozzi pleaded not guilty to charges that he violated the game laws by killing two deer out of season. Reports from the judge's office are that Andreozzi plans to invoke the Temoke law, a government treaty under which Indians can kill deer at any time of the year without license in the Wells area. — *Wells Progress*

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Drouth Area Declared . . .

CARSON CITY—Secretary of Agriculture Ezra Benson has declared all or portions of six counties as drouth disaster areas. Counties effected are Washoe, Pershing, Humboldt, Eureka, Lander and Elko. — *Nevada State Journal*

• • •

Nevada Receives Old Engine . . .

CARSON CITY — The Southern Pacific Railroad Co. presented to the State of Nevada steam engine No. 8, one of the last locomotives traveling the Laws-to-Keeler narrow gauge in Owens Valley.

NEW MEXICO

Indian Relocation Backed . . .

SANTA FE—Delegates to the Interstate Indian Council meeting passed several resolutions aimed at improving the welfare of Indians, but directed no criticism at the Federal Indian administration — a target of attack from many Indian leaders. The council asked that relocation of Indian families to industrial areas be continued. Indian leaders elsewhere have been critical of the alleged government policy of extending assistance only to Indians who move off of reservations. — *New Mexican*

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Burro Shipments Increase . . .

CARLSBAD—A sudden interest in burros has resulted in the shipment of more of the animals out of New Mexico in the last six months than in any similar period since 1947. Most of the burros were sent east to be sold as pets for children. — *Eddy County News*



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THE *Desert* MAGAZINE
PALM DESERT, CALIFORNIA

Tribesman Convicted . . .

ALBUQUERQUE—A member of the Cochiti Indian Masked Medicine Clan has been convicted of taking sacred clan objects from another Indian's home. The objects—an eagle feather, a bear cloth amulet and ceremonial bowls—were exhibited in federal court over the protests of Cochiti Governor Joe Trujillo who said revealing them to white eyes would decrease their value to the pueblo. Vicente Suina, 35, was convicted of the theft despite defense contentions that he is a medicine man and has as much right to the objects as the man he took them from.—*New Mexican*

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Fund Drive Law Passed . . .

SANTA FE—A new law which requires charitable organizations and professional solicitors to register before they can legally solicit donations, has been passed in New Mexico. The registration must be with the county public welfare department director. After the drive is completed, a financial statement showing how much money was raised, the expense of conducting the drive and how the money will be used is also required.—*Las Cruces Citizen*

Bear Population Dwindles . . .

SANTA FE — Bear populations have been decreasing rapidly in most New Mexico mountain areas during the past few years and in order to protect this animal, the game commission has shortened the season in some of the best known hunting ranges. Regulations do not apply to Indian lands where bear hunting is allowed in the Navajo Reservation in the Chuska Mountains.—*Eddy County News*

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Ranges, Cattle in Good Shape . . .

SANTA FE — Agriculture Department agents report that the state's ranges and livestock look good. Following the pre-winter survey, the Agricultural Marketing Service reported that the supply of food is the greatest in several years.—*New Mexican*

. . .

UTAH

Population Loss Refuted . . .

SALT LAKE CITY—Utah's population continues to increase at nearly double the rate of the nation's the Salt Lake Chamber of Commerce reported in an effort to end rumors that Salt Lake County and the state as a whole are losing population. Salt Lake City

proper's estimated population in July was 205,000; metropolitan Salt Lake City, 317,000; and Utah, 783,000.—*Salt Lake Tribune*

. . .

Hunters to Kill Porcupines . . .

SALT LAKE CITY—Utah sportsmen have been asked to cooperate with the Department of Fish and Game and the U. S. Forest Service to help in the reduction of an increasing population of porcupines. The animals are damaging vegetation on the watersheds, it is said.—*Box Elder Journal*

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Octogenarian Hikes Narrows . . .

CEDAR CITY—William G. Curtis celebrated his 80th birthday by hiking the Zion Narrows, a backpack trek that takes three days to complete. Observers believe Curtis is the oldest man ever to hike the Narrows. He made the trip carrying a full pack all the way and emerged without blisters on his feet.—*Iron County Record*

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Drouth Area Asks Aid . . .

BRIGHAM — Box Elder County commissioners will again attempt to secure aid for the drouth stricken west county area. An earlier appeal to the State Drouth committee has not received action. The commissioners hope the necessary action will be taken to declare the area a drouth area in order to receive freight assistance from the Federal government to help with the cost of shipping hay and feed for cattle.—*Box Elder Journal*

Hard Rock Shorty of Death Valley



"Sure, we have a lot o' them mirages in Death Valley," Hard Rock Shorty was telling the dudes who were loafing on the lean-to porch in front of Inferno store.

"They do funny things sometimes — them mirages. Death Valley Scotty told me once that he got the idea fer that big Castle he built up in Grapevine Canyon from a mirage.

"My partner, Pisgah Bill, wuz always tellin' about the mirages he saw. One day he came bustin' into camp all excited.

"'We're rich,' he hollered soon as he saw me.

"When I could get 'im calmed down a bit he told me about it.

"'Best mirage I ever saw in my life,' he was sayin'. 'Looked like Death Valley wuz all a big lake o' water. Me an' the reptiles' — Pisgah allus called his burros reptiles — 'wuz wadin'

through the stuff about knee deep when I stepped in a gopher hole and sprawled out on the ground. An' there right under my eyes wuz a lot o' little gold nuggets—millions of 'em. I scooped up a couple o' handfuls an' put 'em in my pocket.

"'Shorty, you an' me have been slavin' our lives away tryin' to make a livin' outta this ol' silver mine up here on Eight Ball crick. An' now we've got a fortune jest fer shovellin' it up. Let's pack up an' git down there where they's so much gold we can live like kings.'

"To prove his wealth Bill reached in his pocket an' pulled out a handful o' little pebbles. He stared at the rocks a moment an' gasped. All he had was ordinary wash gravel.

"'I guess that gold I saw was jest part of the mirage,' he stammered."

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MINES and MINING

Boron, California . . .

The Pacific Coast Borax Co. announced that it will convert its present system of mining at Boron to open pit and will construct new concentrating and refining plants at the mine site. The new facilities are expected to cost \$18,000,000 and completion date has been set for late 1957. The company also announced that the Wilmington refinery will continue to produce boric acid, special borate compounds and the famous 20 Mule Team packaged borax products.—*Boron Enterprise*

Santa Fe, New Mexico . . .

The discovery of an estimated four million tons of monazite sands, host material to the breeder-reactor substance thorium, has been reported in San Miguel County by Edward J. James, president of Onego Corp. On the basis of assays the concentrate from the monazite bearing surface sands is calculated to have a value of \$40,000,000.—*New Mexican*

Overton, Nevada . . .

Facilities of Nevada Silica Sands, Inc., near Overton, Nevada, have been purchased by Hunt Foods, Inc., and two glass plants of Glass Containers, Inc., in Antioch and Vernon, California. Nevada Silica Sands, Inc., has operated for many years at Overton where a 300-ton flotation mill is handling the material mined on the surface.—*California Mining Journal*

Washington, D. C. . . .

A Senate Interior subcommittee urged a government financed program be started as soon as possible to build plants for treating low-grade manganese ore. Most of the U.S. supply of manganese is imported from South Africa and India. Some 15,000,000 units of this metal essential in making steel are locked up in low grade ores purchased during the war and since the Korean war. There are 22 pounds of metal to the unit.—*Pioche Record*

Lovelock, Nevada . . .

The Pabco Company has revealed plans to construct a processing mill in the Lovelock area to treat its gypsum product. The mill is expected to be built near Colado, six miles east of Lovelock. The company has been developing its large deposits of gypsum during the past summer and the new mill will supposedly be used to prepare this material on a pre-fabrication basis.—*Nevada State Journal*

Tonopah, Nevada . . .

Rehabilitation and development is scheduled on the Silver Leaf mine in the Hannapah district, 20 miles east of Tonopah. The mine has been shut down for 20 years. The property has a good silver and gold production record. Eight claims embracing the mine area were acquired from Mrs. Myra Richardson and Jess Crain by the Uranium and Federated Minerals Co. of South Dakota.—*Nevada State Journal*

Boulder City, Nevada . . .

A barite deposit on the northwest slope of Hemingway Wash in Boulder City will be developed by a group of local men, it was announced. The deposit was originally discovered in 1945, but at that time the government refused to permit mining in the area.—*Nevada State Journal*

Carson City, Nevada . . .

The state of Nevada is standing on the threshold of another rich bonanza—mercury production—reports from several sections of the state indicate. Lincoln county's new mercury mine is reported to be a good producer. Several deposits have been found in the area. United Mercury Company's mine 65 miles southwest of Battle Mountain will start production in the immediate future. Western Mercury and Uranium Corp. has recently acquired a group of 21 claims, containing quicksilver ore, about 118 miles southwest of Pioche. Just over the Oregon line westerly from McDermitt, a quicksilver strike of bonanza proportions was made at the Bretz Mercury Mine.

Rosamond, California . . .

Germanium production by the Darmond Mining and Smelter Corp. of Rosamond will soon be a million dollar a month enterprise, company president Floyd G. Brown predicted. The Darmond company plans a 24-hour per day operation at Rosamond.—*Pioche Record*

Plaster City, California . . .

United States Gypsum Co. announced plans to increase gypsum board production at its Imperial Valley plant at Plaster City. The increased production will provide enough gypsum lath and board for the interior walls and ceilings of about 45,000 new homes per year, a company official said.—*Calexico Chronicle*

Lucerne Valley, California . . .

Kaiser Steel Corp. announced recently that it will purchase a 10-square mile area of limestone deposit in the Lucerne Valley area for more than \$1,000,000. A Kaiser spokesman said tests in the area indicate the deposit, known locally as the Cushenbury deposit, contains enough high grade metallurgical limestone to meet the firm's requirements for many decades. Kaiser also announced the planned construction of a multi-million dollar ore up-grade facility for its iron mines at Eagle Mountain, between Indio and Blythe, California.

New York, N. Y. . . .

The price of platinum has been advanced \$11 an ounce by Baker & Co., leading refiner of the metal. The new price is \$91 an ounce for large quantities. Small lots are priced at \$94 an ounce.—*Pioche Record*

Garfield, Utah . . .

Garfield Chemical and Manufacturing Co. will spend \$2,500,000 for expansion in sulphuric acid manufacturing facilities at Garfield, Utah. It is the third expansion of sulphuric producing facilities by the firm in the post war period and will bring to 1000 tons daily output of the plant.—*Salt Lake Tribune*

Cisco, Utah . . .

Sinclair Oil and Gas Co. reported a major discovery of natural gas 25 miles north of Cisco in northeastern Grand County. The firm immediately projected drilling of three additional wells on 9000 acres of leases it has in the area. It appeared the wildcat might be capable of an output of between 30 and 40 million cubic feet daily.—*Salt Lake Tribune*

Kingman, Arizona . . .

Arizona-Golconda Metals, Inc., is expected to purchase a heavy media separation mill for the treatment of ore in making concentrates. The erection of a Dorr-Oliver flo-solids mill for the recovery of both basic and precious ores is expected to follow. Precious metals such as germanium and indium will be recovered from the Golconda shaft, company officials believe.—*Pioche Record*

The California State Division of Mines has recently issued a bulletin dealing with the *Geology of Mineral Deposits in the Ubehebe Peak Quadrangle* in Inyo County. The quadrangle takes in the old Ubehebe mining district which extends from the Inyo Range to the Panamint Range in the Owens Valley-Death Valley region. Lack of water and isolation of the area are the most serious deterrents to mining. Mines will probably continue to produce small quantities of metal from the lead-zinc-silver deposits. The bulletin also describes minerals found in the quadrangle. Published by the State of California's Department of Natural Resources as Special Report 42, 63 pages, charts, maps, illustrations and three folding maps. \$2.00.

A comprehensive booklet written by Marvin J. Gallagher, Nevada State Inspector of Mines, is being distributed free of charge by the State Printing Office at Carson City. Entitled *Nevada Mining Claim Procedures*, the booklet was prepared in response to many requests for information concerning the locating of mining claims. Copies can be secured by writing to the State Printing Office or to Gallagher, also at Carson City.—*Wells Progress*

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BOOM DAYS IN URANIUM

Western Miners Demand AEC Clarify Future of Uranium

An aroused western mining industry demanded the Atomic Energy Commission immediately disclose its intentions as to purchase of uranium ores from U. S. producers. The action came at the recent Las Vegas, Nevada, American Mining Congress conference.

Geophysicists Adopt Ethics, Prospector Safety Codes

A code of ethics and a safety program for prospectors were adopted in Denver by some of the nation's leading petroleum and mineral scientists.

The 25th annual convention of the Society of Exploration Geophysicists adopted a code which includes:

"Work shall be done with fidelity to clients; findings shall be confidential; compensation shall be accepted only from a single source; only reputable enterprises will be engaged in."

Bart W. Sorge, Pasadena, Calif., said less than half of one percent of the accidents occur in handling explosives, and added that the greatest number occur in handling drilling tools and lifting heavy equipment. — *Salt Lake Tribune*

U. S. Senator Clinton P. Anderson of New Mexico, chairman of the joint House-Senate Atomic Energy Committee, declared the AEC should "issue a formal government statement by early next spring, explaining if it wants uranium and in what years and at what price."

It was apparently felt by the majority of the delegates to the conclave that the future of the uranium program is inextricably tied to new and current planning on military requirements for nuclear energy.

Dr. Armand J. Eardley, dean of the College of Mines and Minerals Industries of the University of Utah, told the convention that according to his estimates the military requirements of the present uranium ore buying program will be met by the end of this year.

Other speakers scored the commission for not letting the uranium miner, miller and investor know the true situation regarding the ore buying program.

G. R. Kennedy, special representative for the Kerr-McGee Oil Industries of Oklahoma, said the present "feeling of uncertainty . . . is alarming and can do nothing but harm to the industry and to the nation." — *Salt Lake Tribune*

AEC Declares Policy for Purchase of Thorium Ores

The AEC has issued a policy statement regarding the status of thorium which declares that no new contracts are being negotiated at present because of limited requirements for the metal.

"Since 1947 the commission has been purchasing by-product thorium salts from domestic processors of monazite sands. Thorium is a source material under the Atomic Energy Act and shipments and sales are subject to the licensing regulations of the commission.

"By-product thorium production in excess of licensed domestic and export sales has been purchased by the commission for research and development and also for stockpiling against possible future needs. The commission has established a limited stockpile goal. Contracts concluded now reasonably assure the fulfillment of the goal within the time limit set by the commission.

"Consequently no new contracts are being negotiated. Because of the commission's limited requirements for stockpiling, at no time have we had a thorium buying program similar to that for uranium ores.

"It should be added that thorium has potential uses in the atomic energy program and may possibly be converted into a satisfactory nuclear for the production of industrial power. When and to what extent these uses may become important will be dependent upon the results of research and development programs," the AEC policy statement declared. — *Salt Lake Tribune*

Atomic Energy Commission to Purchase Zirconium, Hafnium

The Atomic Energy Commission will ask for offers of up to two million pounds of zirconium metal and for as much hafnium metal as can be produced in the processing of zirconium in November.

The two metals are needed to meet the increasing requirements of the AEC's reactor development program and of currently scheduled naval projects, the Commission said.

The AEC has tentative plans to solicit proposals for delivery of two million pounds of high purity zirconium metal over a five-year period, or 1,200,000 pounds over a three-year period. The proposals should also include offers for the delivery of as much hafnium metal as can be produced in the process of manufacturing the zirconium.

"Present plans call for issuance of an invitation for proposals in November, with receipt of proposals by February of next year. The deadline for starting deliveries is expected to be July, 1957," the AEC said. — *Mining Record*

Twin States Uranium, Inc., has sold 28 claims to the Gibraltar Uranium and Oil Co. of Grand Junction, Colorado, for an undisclosed amount of cash and royalties estimated at \$5,000,000. The claims are located 10 miles east of Winslow and the sale was hailed in some Arizona quarters as the beginning of a \$30,000,000 uranium development program in Navajo and Apache Counties. The claims contain an estimated 500,000 tons of commercial uranium ore. — *Holbrook Tribune-News*

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New Curbs on Uranium Stock Sales Asked by Congressman

New ways to curb what was described as the "uranium stock swindle" were suggested recently by Rep. John B. Bennett of Michigan. "The sale of uranium securities has grown into a big racket," Bennett declared. He said promoters of these securities should have to put up their own money before seeking funds from the public.

Before being permitted to sell stock to the public they should also be required to show a record of production and earnings, he added. He said he will push for enactment of a bill he has introduced in Congress to force such promoters to comply with the full registration requirement of the securities and exchange act. At present the law exempts from the requirement stock issues of \$300,000 or less. Most uranium issues fall into this category.

Uranium Mines in Utah Must Be Ventilated, State Orders

Uranium mine operators in Utah were ordered by the State Industrial Commission to install ventilating equipment necessary to keep air-borne radioactive substances at a level which will be safe for those working in the mines. Otto A. Wiesley, commission chairman, said the order is being made effective as of next Jan. 1 to give the operators sufficient time to make atmospheric contamination studies and arrange for the installation of the equipment.

The Commission has adopted as a maximum allowable concentration of radioactive substances to which workers would be exposed, a total of 300 micromicrocuries of the degradation products of radon gas per cubic liter of air. This is calculated on a basis of an exposure of 40 hours per week. This figure is based on findings developed at a conference on uranium mining health hazards held last February in Salt Lake City.

The commission's order said the atmosphere content of radioactive substances is to be determined "by a field method acceptable to the State Bureau of Mines, and every operator shall make a reasonable effort to approximate said standard."—*Salt Lake Tribune*

Three location sites are being considered by Tonopah United Uranium, Inc. for the installation of a portable uranium upgrading plant which will be able to upgrade uranium ores that have a U308 content of .03 or greater.—*Humboldt Star*

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Discovery of a uranium ore body of major proportions was made recently on the Diamond Claim of the Uranium Mines, Inc., group six miles south of Austin. Importance and extent of the discovery was realized by company officials when the ore showing broadened from a 10-foot width on the surface to a 35-foot width 12-feet below the surface. Minerals occurring in the vein are autunite and torbernite. Additional preliminary development work shows the high grade face of ore widens even more with increasing depth.—*Reese River Reveille*

What is believed to be the highest uranium strike on record was discovered 13 miles southwest of Lake City, Colorado, at an elevation of over 12,000 feet. This unusual deposit is thought to come from hydrothermal action and further exploration will prove a primary ore deposit containing pitchblende. American Uranium made the discovery.—*Pioche Record*.

AEC Studies Livestock Deaths from "Blue Snow"

A special team of AEC investigators is checking stories of a "blue snowfall" in the Black Lake region last spring which ranchers contend caused illness and death of livestock. The team is attempting to determine whether there was any connection between the blue snow and radioactive fallout caused by atomic tests in Nevada last spring.

Ranchers complained that more than 100 head of cattle died of a mysterious disease following a heavy snowfall in northern New Mexico last May.

AEC officials contend the fallout in the New Mexico area was negligible and said fallout was not responsible for the infection of humans or cattle in the area.

Walter Graves, supervisor of the Carson National Forest, said his office had received no reports of the blue snow or injuries to livestock.—*El Crecusculo*

Colonial Uranium Co. has acquired control of Thorium Corp. of America. Colonial and TCA plan to embark on an early program to create milling facilities for processing thorium ores now obtainable in Colorado, Wyoming and New Mexico, Robert I. Ludwig, Colonial president, said.

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New Mexico Uranium Ore Richest Yet. Assay Shows

E. Frank Parker, Albuquerque assayer, announced that examination of New Mexico ore samples just completed show a higher grade uranium than ever discovered on the Colorado Plateau.

Parker said the sample brought to him for assay by Albert E. Walker of Albuquerque has a uranium content of 10.91 percent—about 21 times greater than the overall average discovery in New Mexico, Colorado or Utah. Parker said he ran three tests on the sample, carnotite in a carbonaceous sandstone, in addition to the AEC standard tests.

Walker refused to reveal the location of the discovery saying only that it was in New Mexico.—*Alamogordo Daily News*

U. S. Uranium Mines Show 40% Production Increase

Sheldon P. Wimpfen, AEC operations manager at Grand Junction, Colorado, estimated that U.S. mined uranium this year will be 43 percent greater in total tonnage than in 1954.

"A year ago," Wimpfen said, "we were able to cite 10 deposits which had more than 100,000 tons of uranium reserve. Today we know of 25 deposits which contain reserves in excess of 100,000 tons and at least a few where reserves are measured in multiples of millions of tons."

There are now nine AEC mills in the country and three more will be added by the end of the year. The rate of milling is 25 percent greater this year than in 1952, he added.—*Coconino Sun*

Map of Uranium Deposits Published by Government

The federal government has announced publication of a new map showing locations of the most important known uranium deposits in the United States. The geological survey, which prepared the map, said the principal deposits are in sandstone of the Colorado Plateau in Arizona, New Mexico, Colorado and Utah, and in limestone in New Mexico.

Important deposits in sandstone also are located in South Dakota and Wyoming marginal to the Black Hills, and in other parts of Wyoming. The locations of the deposits are based on information obtained from published and unpublished reports by the AEC, its contractors and the geological survey.

Copies of the map may be ordered by mail at 50 cents each from the geological survey distribution centers at Washington 25, D. C., and Federal Center, Denver 2, Colorado. Purchases may be made across the counter, but not by mail, from survey offices in Washington, Los Angeles, San Francisco, Denver and Salt Lake City. —*Phoenix Gazette*

Merritt K. Ruddock of Moab and Denver recently received a check for \$2,800,000 for the sale of his family's Cal-Uranium Mine in Utah's Big Indian District. Mountain Mesa Uranium Co. purchased the mine. The money was advanced to Mountain Mesa by Hidden Splendor Mining Co., a wholly owned subsidiary of financier Floyd B. Odum's Atlas Corp. The payment is regarded as another step in the involved assembly of major uranium properties in the district under direct or indirect control of the Atlas Corp.—*Salt Lake Tribune*

Uranium exploration activity reached a new high in Socorro County, New Mexico, as crews finished staking claims on a 28-section ranch. Ranchers Exploration and Development Corp. of Roswell and Grants, and Paul E. McDaniel, Inc., had a 20-man crew doing staking and validation work on the Hunter Long ranch, 20 miles east of Socorro. Over 1000 claims encompassing approximately 18,000 acres will be staked and filed in the program.—*Grants Beacon*

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The finishing polish of highest quality can be obtained on a small end grain wooden disc of approximately three-inches diameter in which a half round groove has been turned. This is charged with approximately one micron size diamond dust mixed with olive oil and applied in small lots continuously. Since the wooden disc has to revolve at approximately 3000 rpm, a considerable amount of heat is generated which might melt the cement. However, you can dip the stone in cold water without fear of cracking it, and so work continuously. — Compton, California, Gem and Mineral Club's *Rockhound Call*

CLUB SPEAKER GIVES ADVICE TO BEGINNING GEM HOBBYISTS

Mrs. DeWitte Hagar has the following advice to give to beginners interested in the gem and mineral hobby. First, join a club and attend all the gem shows near at home. Observe a lapidary at his work, take some lessons. Vary the shape of your cabochon—don't make them all "canoe" shaped. Perfect the art of cutting cabochons before going on to other types of cutting. Mark the base of a stone before starting a cut and keep the bottom side of the stone toward you while cutting. When buying cutting material, examine it both wet and dry. Keep an eye out for fractures. — Hollywood, California, Lapidary and Mineral Society's *The Sphere*

TRIM SAW SAVES TIME WHEN CUTTING CABOCHONS

For perfect cabochons the next step after slabbing is to outline all flaws with an aluminum — not lead — pencil. Wet the slices to simulate a polish and see the gem possibilities. Templates are invaluable for marking cutting outlines.

If only one cab is to be cut from a slice, a sturdy pair of round-nosed pliers can be used to clip away the excess rock before grinding. A trim saw, however, is ideal for this job, especially when several gems are to be cut from one slab. The trim saw is a simplified slabbing saw. No chuck is used and the stone is hand-fed into the diamond blade. This type saw is also handy for cutting pebbles and fragments which are too small for the slabbing saw.

To conserve valuable material when sawing precious stones, some lapidaries remove the diamond blade and substitute a much thinner metal disc reinforced with large washers to prevent bending, leaving only a half-inch of the rim exposed. Norbide or one of the silicon carbide grits, about 120, does the cutting. — Indianapolis, Indiana, Geology and Gem Society's *Geologem*

ABRASIVES CAN BE SEPARATED BY USE OF SIPHON PROCESS

Abrasive grains, often called "grits," sometimes do not work the way they are supposed to. Lapidaries have been annoyed and discouraged when scratches appear on the almost completed surface of a stone they are polishing with the finer grades of grits.

One of the reasons for this is that commercial grades of silicon carbide and aluminum oxide often carry grains that are much coarser than specified on the container.

An easy method to purify the abrasive has been developed. First place two pounds of 600 grit into a two-gallon jar and add an ounce of solution sodium metasilicate or orthosilicate and then fill the jar with hydrant water. Stir the contents thoroughly and then allow the jar to stand 30 minutes. After that period of time, carefully siphon off the liquid to within two-inches of the settlings into a five-gallon jar. The grains

thus removed are those that failed to reach the bottom of an eight-inch column of water in 30 minutes. Another ounce of the chemical used above is then added to what is left in the two-gallon jar, again agitated, allowed to settle for 30 minutes, and then siphoned off and added to the larger jar. This process is repeated until the large jar is filled. After two hours of settling the solution can be siphoned off from the large jar. — El Paso, Texas, Mineral and Gem Society's *The Voice*

A machine to make diamonds on a commercial scale would have to produce pressure of up to 8000 pounds per square inch. Such a machine would cost \$1,500,000. Synthetic garnets have been produced in the General Electric synthetic diamond laboratory from common rock. — Seattle, Washington, *Nuts and Nodules*

Zircon is also known as hyacinth and jargon. In ancient times it was called lynx-stone. Rubies, sapphires, spinels and garnets are found with zircons. — Evansville, Indiana, Lapidary Society's *News Letter*

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24" \$	93.24	65.73
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36" \$	228.00	188.05

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and shields are furnished in 3 sizes and price ranges to suit your requirements. Water and grit proof.

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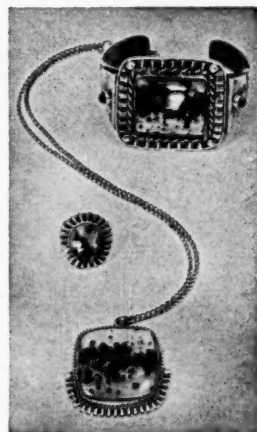
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GEMS AND MINERALS

AMERICAN GEM SOCIETY REVISES BIRTHSTONE LIST

The American Gem Society has issued its revised list of birthstones. The selection differs from the Biblical and English lists. Months and their stones in the new list are: January, garnet; February, amethyst; March, bloodstone or aquamarine; April, diamond; May, emerald; June, pearl or moonstone; July, ruby; August, peridot or sardonyx; September, sapphire; October, opal or tourmaline; November, topaz or citrine; December, turquoise or lazurite. Minnesota Mineral Club's *Rock Rustler's News*

The California Federation of Mineralogical Societies will hold another field trip seminar on the weekend of Dec. 31-Jan. 1. Mary Frances Berkholtz, Federation field trip chairman, announced. New ideas, trips and current field trip problems will be on the seminar agenda. Each member society is limited to two representatives and place of the meeting has not yet been announced. —Lockheed Employees Recreation Club's *Rockcrafters*

BLANK MOUNTINGS for AGATE JEWELRY WHOLESALE

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PRECIOUS GEM, HIDDENITE RARER THAN DIAMONDS

Hiddenite, a variety of green spodumene, is a precious gem that is literally priceless because of its rarity. About three-fourths of all the hiddenite that has ever been found is now in the South Carolina Geology Museum.

Hiddenite was discovered in 1879 by William E. Hidden who was prospecting the foothills in Alexander County, North Carolina for platinum then believed necessary to the manufacture of electric lights. He noted some unusual gem stones with a greenish hue in a local mineral collection which he mistook for emeralds. The gems were identified as a variety of spodumene hitherto unknown.

Hidden uncovered several pockets of the green spodumene in 1880, as well as emeralds and other semi-precious gems. A corporation, "The Emerald and Hiddenite Mining Company" was formed to exploit these discoveries.

In 1927 Burnham S. Colburn of North Carolina and his brother William, a mining engineer, reopened the mine. Hiddenite is not found in veins but in peculiar crevices beneath the surface. The two men had almost exhausted their funds when they discovered a pocket of the gem material.

Hiddenite is a better stone than emerald, Colburn believes, but tends to be thin, making it difficult to cut and easy to damage during mining.—*State Magazine*

In Kimberley, South Africa, Ben Smith found 28 diamonds in one day's washing at a site in the heart of the city. An old building was demolished to make way for a modern structure and Smith and his associates moved in with a portable washing plant and fine screens to sort coarse from fine grit. Evansville, Indiana, Lapidary Society's *News Letter*

ROCKHOUND CLUBS CHOOSE OFFICERS FOR NEW YEAR

The Orange Coast Mineral and Lapidary Society of Huntington Beach, California, elected Larry Summers president for the coming year. Others elected were Neal Wilson, vice president; Mrs. Thelma Biescar, secretary; and Larry Gubin, treasurer.

Katy Trapnell was elected president and Jim Blakeley vice president of the Phoenix Mineralogical Society of Arizona. Elected to the board of directors were Joseph W. Harris, C. Fred Burr, Harry V. Hill and Susan Cummings.—*Rockhound Record*

Officers of the San Jose, California, Lapidary Society for the 1955-56 club year are Victor Mason, president; Marvin H. Brown, vice president; Mrs. Florence Fuller, secretary; John W. Catlin, treasurer; and Claire R. Rice, editor.—*Lap Bulletin*

Members of the San Diego, California, Lapidary Society have elected Charles Tucker president for the coming year. Other officers who will serve with him include Frank Whigham, first vice president; Howard Blackburn, second vice president; Ed Bohe, treasurer; and Eleanor Blackburn, secretary. Tucker replaces Ed Soukup. —*Shop Notes and News*

New officers of the Omaha, Nebraska, Mineral and Gem club are Ruth Grantham, president; John Hufford, vice president; Lloyd C. Fowler, secretary-treasurer; and Jack Ferrel and Max Schackneis, directors.

FEDERATION VICE PRESIDENT GIVES COLLECTING ADVICE

Vincent Morgan, vice president, mineral division, of the California Federation, has the following advice to give to mineral collecting parties:

First make certain that the spot where you are going to collect is reasonably safe. An old mine which has been abandoned 40 years or more may be perfectly safe while an active mine may have areas in it that are extremely hazardous.

Do not remove material, however desirable, from around supporting timbers. This may be all that holds the ceiling up. Continually watch overhead and along the walls of any passageway, for a loose slab may need only the vibration of your voice to come crashing down.

Never enter an old mine alone. Always have at least one person outside who can drive a car in the event of an emergency. Always let someone at home know where you are going and when you should be back.

Provide some method of protection for specimens as they are collected. Where conditions permit, specimens of all but the most lacy materials may be protected for shipment by placing them in a box or can filled with sawdust or sand.

Exercise all due care and caution when extricating fragile specimens in order to prevent damage. If you cannot work a specimen out without spoiling it, leave it for someone else who may be better equipped.—Pasadena, California, Mineralogical Society of Southern California's bulletin.

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HILLQUIST GEM DRILL-HOLE SAW
Drills finest holes at high speed and saws discs up to 1 1/2". Exclusive ramrod action prevents core plugging. Fully automatic. \$68.80



HILLQUIST COMPLETE FACETER
Only \$62.50 complete with 3 index plates. You can cut any faceted form quickly and easily. The equal of faceters costing twice the price.



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Eisenhower Likeness Carved From Largest Black Sapphire



The Eisenhower Sapphire

Cutting of the 1444 carat Eisenhower sapphire has been completed, Kazanjian Bros. or Los Angeles, cutters and importers of diamonds and precious stones, announced. The Eisenhower sapphire joined the Kazanjian series of Great Americans in sapphire which includes the likenesses of George Washington and Abraham Lincoln. The Thomas Jefferson sapphire is being carved.

Six models of the Eisenhower carving were made by Harry Derian, the artist, in terracotta. This took over six months. The actual carving was done with a dental power drill using diamond bonded tools, diamond charged and diamond crystal, at a speed of 10,000 revolutions per minute. Most of the tools were of special design. The first step was to carve out the nose. The forehead, mouth, ears and eyes followed.

A cavity was discovered on the right side of the neck caused by a basic fault line running across the face. This line was used to advantage to form the line of the mouth. The finished sapphire measured $2\frac{1}{2}$ x $2\frac{1}{16}$ x $\frac{3}{4}$ inches.

A unique feature of the stone is that it

has a fine star at the base of the neck, visible on a mirror placed in the solid gold case on which the sapphire is mounted. The star formation is the only known reverse intaglio cabochon in existence. The Eisenhower sapphire is also the largest black star sapphire in the world today.

Have you ever seen anything so sparkling and bright
As the millions of tin cans along the highways at night?
Like jewels they glisten, in the rays of your light.
Would they were jewels instead of a blight.
—Pick 'N Shovel

Limited collecting is now permitted at the Brown Derby Mine near Ohio City, Colorado. Permission to enter and collect must be arranged in advance and a charge may be made for material collected. Arrangements for visiting this mine may be made by writing to Charles Vashus, Ohio City, Colorado.—*Sooner Rockologist*

LINDE "A" RUBY POWDER \$3.75 PER LB.

For a **LIMITED TIME** the factory has asked us to sell "factory seconds" of this wonderful polishing agent which normally sells for \$20 per lb. Actual professional tests show this to be perfect for polishing cabochons and for use in tumbling barrels. **DEALERS WRITE FOR DETAILS. QUANTITY IS LIMITED** but we should be able to fill orders until the end of the year. 8 oz. \$2.00; 1 lb. \$3.70; 5 lbs. for only \$13.90.

TIN OXIDE \$1.50 PER POUND

If you buy \$5 worth of **Basic Lapidary Supplies** from the following list. A \$10 purchase entitles you to buy 2 lbs. **Tin Oxide** at \$1.50 per lb. A \$25 purchase entitles you to buy 5 lbs. of **Tin Oxide**.

NORTON CRYSTOLON GRINDING WHEELS . . .

Size	6x1/2"	6x1"	8x1"	8x1 1/2"	10x1 1/2"
80 grit				\$8.20	
100 grit	\$2.90	\$3.95	\$5.85	8.20	\$12.40
220 grit	3.25	4.30	6.45	9.00	13.65
320 grit	3.65	4.90	7.35	10.25	15.50
Shipping weight	2 lbs.	3 lbs.	5 lbs.	6 lbs.	9 lbs.
Crystolon Wheel Dressing Brick 6"x2"x1"					\$1.05

CRYSTOLON ABRASIVE for the Lapidary . . .

Grit Size	1 Pound	5 lb. Lots	Grit Size	1 Pound	5 lb. Lots
80, 100, 120, 180, 220	\$.90	\$.56	Graded 400	1.09	.75
2F (320, 3F (400))	.94	.60	Graded 600	1.35	.98

DURITE (Silicon Carbide) ROLL SANDING CLOTH—

Dry Rolls—Available in 120, 220, 320 grits
2" wide, 25 ft. long—\$2.15; 150-foot roll—\$ 9.60
3" wide, 15 ft. long— 2.15; 150-foot roll— 14.10
10" wide, 5 ft. long— 2.15
12" wide, 5 ft. long— 2.40

DURITE SANDING CLOTH in round disks . . .

Dry Type Available in 120, 220, 320 grits				Wet Type Avail. in 150, 220, 400, 600 grits			
6" discs	8 for \$1.10	25 for \$ 2.40		6" discs	5 for \$1.00	25 for \$ 3.90	
8" discs	5 for 1.10	25 for 4.40		8" discs	3 for 1.10	25 for 7.00	
10" discs	3 for 1.10	25 for 6.90		10" discs	2 for 1.15	25 for 11.00	
12" discs	2 for 1.10	25 for 10.10		12" discs	2 for 1.65	25 for 16.00	

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4" diameter by .025" thick	\$ 7.80	10" diameter by .040" thick	\$14.80
6" diameter by .025" thick	7.80	12" diameter by .040" thick	18.20
6" diameter by .032" thick	7.80	14" diameter by .050" thick	25.20
8" diameter by .032" thick	10.40	16" diameter by .050" thick	28.60
8" diameter by .040" thick	11.40	20" diameter by .060" thick	39.20
		24" diameter by .050" thick	50.60

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JEWELRY MAKERS attention. Folder with 60 modern, original designs for pendants, necklaces, earrings, etc. No soldering. Complete set \$1 postpaid. Dills-Gould, Box 87, St. Helena, Calif.

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OPALS AND SAPPHIRES rough, direct from Australia. Cutting opal, 1 ounce \$5, \$10, \$20, \$30 and \$60. Blue sapphires, 1 ounce \$10, \$30 and \$60. Star sapphires 12 stones \$10, \$20, and \$30, etc. Post free and insured. Send international money order, bank draft. Australian Gem Trading Co., 49 Elizabeth St., Melbourne, Australia. Free list of all Australian stones rough and cut, 16 pp.

GENUINE TURQUOISE: Natural color, blue and bluish green, cut and polished cabochons — 25 carats (5 to 10 stones according to size) \$3.50 including tax, postpaid in U.S.A. Package 50 carats (10 to 20 cabochons) \$6.15 including tax, postpaid in U.S.A. Elliott Gem & Mineral Shop, 235 E. Seaside Blvd., Long Beach 2, California.

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ROUGH TURQUOISE — World famous spiderweb turquoise. \$1 per ounce, \$12.50 per pound. Travis Edgar, Battle Mountain, Nevada.

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FIRE AGATE—ground to show the fire, you finish it. \$2, \$3 and \$5 each. B&H Rock Shop, 2005 N. Big Spring St., Midland, Texas.

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Rockhounds and others interested in minerals have been invited to visit one of the Southwest's most complete displays at the Arizona Mineral Museum in Phoenix. The museum is located at the State Fairgrounds and will be open throughout the winter from 9 to 5 Monday through Friday and from 9 to noon, Saturdays.

The nation's rockhounds will soon be identified by auto insignias, sponsored by the American Federation. The new insignias are now being distributed by the Federation to an estimated 30,000 rockhounds in the United States. From the *Rockhound Record*, bulletin of the Mineralogical Society of Arizona.

AMERICAN INDIANS USED MANY MATERIALS FOR ARROWHEADS

American Indians made their most important implements—the arrowhead—from a variety of material.

In the East they used Maine slate for their spear and arrow points. A fine example of quarrying is found in the ancient quarry right in the heart of Washington, D. C. Boulders of quartz and quartzite were dug from the shore line of the ancient cretaceous sea.

Indians in the midwest dug into the flint strata for their material. Flint was heated and then dashed into water. This resulted in a cracking of the flint and the usable pieces were then worked into the shape desired.

In the states of Oklahoma, Kansas and Missouri, Indians used chert which gave the great plains buffalo hunters their weapons.

In Wisconsin and Michigan gray quartzite and sugar stone were used. From the same states have come many copper artifacts and arrow points.

In the Southwest and Far West, great deposits of obsidian furnished excellent material. The Indians broke off large flakes of this material from the outcroppings and chipped them to the right shape.

In the Northwest came the finest of all arrow points—the agate arrowhead. A famous New York Jewelry firm used Oregon points to decorate a cup for Kaiser Wilhelm of Germany.—Chicago Rocks and Minerals Society's *The Pick and Dop Stick*

BAKERSFIELD FOSSIL AREA YIELDS PERFECT PINE CONE

A fossilized pine cone discovered by George Saunders of Bakersfield, California, has been declared authentic by Theodore Downs, Curator of vertebrate paleontology for the Los Angeles Museum of Natural History. Saunders found the cone nine miles northeast of Bakersfield at a place known as Shark Tooth's Hill. Downs visited the area following Saunders' discovery and found a tooth of an extinct species of sea lion and numerous shark's teeth there.

Saunders' cone is in an excellent state of preservation with each nodule and each row tightly packed together like cut quartz crystals. Downs said the mineral which penetrated the cone and hardened it was gypsum. The specimen is about three-inches long.

Downs identified the specimen as belonging to the middle or late Miocene period.

ANSWERS TO DESERT QUIZ

Questions are on page 27

- 1—Lizard.
- 2—Escape persecution.
- 3—Paleontologist.
- 4—Death Valley '49ers.
- 5—Santa Fe.
- 6—Billy the Kid.
- 7—Food.
- 8—The Mountain Meadows Massacre.
- 9—Chemicals.
- 10—Phoenix.
- 11—The bottom of Grand Canyon.
- 12—Mexicans.
- 13—Salt River Valley of Arizona.
- 14—Topaz.
- 15—Species of date.
- 16—Quicksilver.
- 17—Colorado River.
- 18—Nevada.
- 19—Saguaro.
- 20—Narcotic effect.

COMMON SALT ONE OF MOST IMPORTANT MINERALS KNOWN

Common salt, sodium chloride, is such a familiar commodity that people tend to take it for granted. In modern life it is scarcely possible to avoid contact with salt, the products of salt, or things in the preparation of which salt has played a part. It is an indispensable article in the diet of man and animals, yet less than 5 percent of the U. S. production is consumed in the home, for salt is the basic chemical raw material from which most sodium and chlorine compounds are made. It has, in addition, hundreds of other commercial applications, including the preserving of food and ice control.

Salt is obtained from sea water, from mines and from brines beneath dry lakes. Halite, the natural sodium chloride, has a perfect cubic cleavage, a hardness of 2.5 and a specific gravity of 2.1 to 2.6. The pure mineral is transparent to translucent and colorless to white, but impure halite may be yellow, brown or red. It occurs as crystals with cubic habit or as a granular mass called rock salt.

The three general types of salt marketed are: crude salt, produced from sea water, 99.4 percent pure; kiln dried salt, a moisture free product, 99.8 percent pure; and vacuum refined salt, 99.95 percent pure. The latter is used for seasoning food.—*Delvers Gem and Mineral Society's Delvings*

GEOLOGICAL FAMILY LINKS FOSSIL, OIL LOCATIONS

Microscopic fish fossils may provide clues to the location of oil, a husband and wife geological team reported. They found that *endothyroid foraminifera*, which enrich deposits of Indiana limestone, were good indicators of oil.

The fossils are a half a millimeter in diameter and they bear physical resemblance to the pearly nautilus. They existed between 70 and 80 million years ago, according to the New York Times. Dr. Doris E. Nodine Zeller, who examined these fossils in the Rocky Mountains, the Avon Gorge near Bristol, England, and in the Djurdja Mountains of northern Algeria, was assisted by her husband, Dr. Edward E. Zeller.

They found the fossils in rocks of an age equivalent to those unearthed in the Mississippian stratum in northern Illinois, Indiana and Missouri. This information was of particular interest to oil geologists, who believe the presence of these fossils indicate the location of oil. (From the *Pick and Dop Stick*, bulletin of the Chicago Rocks and Minerals Society.)

Employees of North American Aviation's propulsion field laboratory at Chatsworth, California, have organized a new rockhound club, the North American Rocket Rockhounds. Elected president of the new organization was Felix Kallis. Other officers include Frank K. William, vice president; Peggy Hood, secretary; and Mrs. Madelyn Cheadle, treasurer. The club has 25 charter members. Meetings are held on the first Friday of each month. Kallis is a past president of the San Diego, California, Mineral and Gem Society.

FAMOUS TEXAS PLUMES

Red Plume, Black Plume, Pom Pom and many other types of agate. Slabs sent on approval for deposit or reference. Free price list on rough agate.



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CYCLOTRON PERMANENTLY CHANGES DIAMOND'S COLOR

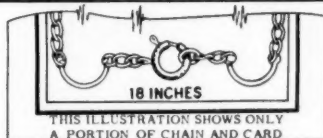
The exposure of cut diamonds to a stream of deuterons produced by a cyclotron is modern alchemy having an effect similar to that achieved in Nature when diamonds lie deep in the earth close to radioactive minerals. The green or golden color characteristic of certain rough stones, both Brazilian and South African, is now believed caused by such natural bombardment. The weak rays do not penetrate the stones deeply,

however, and after millions of years the color is still only skin deep. Natural stones in which the color change has penetrated deeply enough to survive cutting and polishing are very rare and hence extremely expensive.

Cyclotron bombardment now makes safely and permanently available this coloration of diamonds. Once removed from the cyclotron there is no residual radioactivity in the gem as there was in the radium-treated stones of 20 years ago.—*Chicago Rock and Minerals Society's Pick and Dop Stick*

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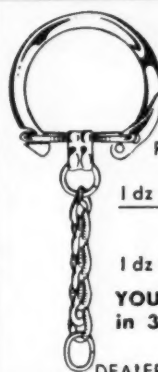
YOUR COST—78c each

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On fancy display card, jump rings made from as large as 19 gauge wire will fit in these links for hanging baroque.

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\$1.10 ea 3 for \$2.80 1 dz \$8.35

GOLD FILLED
\$1.25 ea 3 for \$3.10 1 dz \$9.30



No. 39-5 KEY RING 1" & 1" FANCY CHAIN

Chain will not kink.
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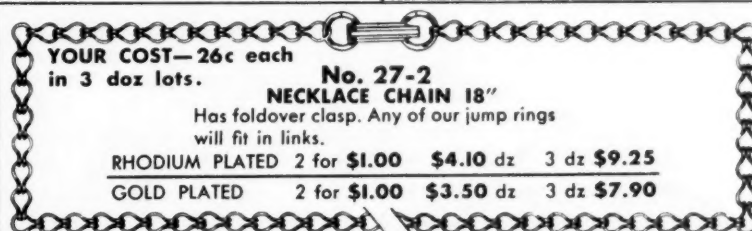
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YOUR COST—24c each
in 3 doz lots.

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YOUR COST—26c each
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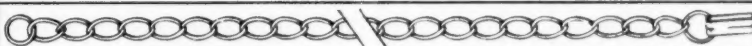
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NECKLACE CHAIN 18"

Has foldover clasp. Any of our jump rings will fit in links.

RHODIUM PLATED 2 for \$1.00 \$4.10 dz 3 dz \$9.25

GOLD PLATED 2 for \$1.00 \$3.50 dz 3 dz \$7.90



No. 28-3

BRACELET CHAIN 7"

STERLING SILVER RHODIUM PLATED

95c ea 3 for \$2.15 1 dz \$7.60

GOLD FILLED

\$1.10 ea 3 for \$2.50 1 dz \$8.80

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Three thousand people attended the recent Humboldt Gem and Mineral Society show in Eureka, California, the sponsoring organization announced. Outstanding exhibits included jade and gold collections and the 1500-piece cabochon collection owned by Mr. and Mrs. Arthur Johnson of Corvallis, Oregon.

Dates for the 1956 Rocky Mountain Federation convention in Rapid City, South Dakota, have been set for June 14-17. A feature attraction of the meeting will be a mass display of the major Fairburn agate collections. — Wichita Gem and Mineral Society's *Quarry Quips*

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HORSE CANYON AGAIN OPEN, ROCKHOUND CLUB REPORTS

Horse Canyon, popular Southern California collecting area, has again been opened to rockhounds. This famous agate deposit in Cache Creek near Monolith, California, has been leased by the Horse Canyon Agate Club of Fresno for 1955-56 with an option to renew the lease for 1956-57.

Clubs and individuals who wish to collect in this area may obtain permission to do so by purchase of a ticket which entitles them to a day's digging for one dollar. A limit of 50 pounds of material has been placed on each ticket. Camping is permitted in the established area only. Deep holes and excavations must be filled and firearms or explosives are not allowed in the area. Secretary of the Fresno club is Mrs. Helen P. Bever.—Lockheed Employees Recreation Club's *Rockcrafters*

SILVER ONCE OUTVALUED GOLD BY 14:1 RATIO

Silver has been known from the beginnings of history. It is ductile and malleable—one ounce of this metal can be stretched into a mile-long wire.

In 2000 B.C. Greece considered silver more valuable than gold. The rate of exchange was one ounce of silver for 14 ounces of gold. Coins were first made out of silver around 600 B.C. A common practice was to shave the edges of the coins to obtain a few crumbs of illegal silver. This was stopped by introducing a raised ridge around the edge of the coin—a practice still employed today on all coins. Silver is found in many different ores, the main one being argentite.—Hollywood, California, Lapidary and Mineral Society's *The Sphere*

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AUSTRALIA CLAIMS WORLD'S FINEST OPAL SPECIMENS

Of all the gem stones found in Australia, the opal is perhaps the most outstanding for its quality is admittedly the best in the world, the play of color, intensity and variety of pattern being infinitely superior to opal mined elsewhere.

There are four main types of opal in Australia: white or fire opal, black, boulder and opal matrix. Opal is a child of the desert and occurs in what is known as the Rolling Downs Formation where there is everywhere a tendency to opalization.

Opal is composed of hydrated silica and has a specific gravity of 2 to 2.2 with a hardness on Mohs' scale of 5.5 to 6.5. Generally speaking it is not necessary to diamond saw opals when cutting. The sequence of operation is: 1. sawing; 2. roughing out, holding stone by hand; 3. cementing on dopstick; 4. roughing out, removing surplus material and shaping; 5. finishing grinding to exact shape and setting edges; 6. sanding on carbo paper; 7. sanding on worn carbo paper; 8. polishing on felt buff; 9. knocking off dopstick; 10. cleaning with methylated spirits. Compton, California, *Rockhound Call*

FINGERNAIL, COPPER PENNY USED FOR HARDNESS TEST

If you want to check the relative hardness of a specimen that you have found but do not have a hardness scale with you, you can easily improvise by using three common things: your fingernail, a copper penny and a knife blade.

A fingernail has a hardness of slightly over 2 on Mohs' scale. All minerals that can be scratched by your fingernail are less than 2.5. This includes talc and selenite (gypsum). A copper cent has a hardness of about 3.5 which means it can scratch the above mentioned two minerals and calcite. A steel knife blade has a hardness of about 5.5 which will scratch the three minerals above plus fluorite and apatite.

When you test a mineral for its hardness, remember to test a fresh surface. Many minerals that are exposed to the weather tend to become soft and powdery.—David E. Jensen's *My Hobby is Collecting Rocks and Minerals*

While various types of petrified wood showing worm hole borings are not rare, yet they are by no means common in fine examples. In general there are two types of worm bored fossil woods, those made by dry land termites which are the smaller holes as a rule; and the salt water teredo bores which are usually larger holes nearly an inch in diameter.—*The Mineralogist*.

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New and Improved Products for Desert Living

DETECTRON ADDS FEATURES TO DG-2 GEIGER COUNTER

The completely redesigned Model DG-2 Geiger counter manufactured by Detectron Corp., 5528 Vineland Ave., North Hollywood, California, features many worthwhile improvements. A new carrying handle and wide-face, easy - to - read sensitivity meter are among the new features along with a "time response switch" which provides fast recording for prospecting and slow recording for more accurate specimen checking; completely tropicalized and waterproofed circuitry; neon count indicator for visual radiation detection; and a set of sensitive headphones for audio-click detection. The DG-2 is sensitive to both beta and gamma radiation and is completely calibrated in all three scales. It operates on 900 volts power using standard low-cost batteries and weighs only five pounds. Complete with headphones, batteries, six ore specimens, carrying belt and instructions, it sells for \$98.50.

• • •

PORTABLE BABY SITTER FOR THE OUTDOOR MAN

"Hike-A-Poose" is a lightweight, sturdy device that permits hikers and active sportsmen to tote their youngsters comfortably on their backs. Made of canvas and tubular aluminum, the portable seat weighs only 39 ounces. It has a special harness to insure balance and no rigid parts come in contact with the body.

The Hike-A-Poose doubles as a pack frame for carrying bulky loads. It also converts into a child's car seat. Himalayan Pak Company, 61 Renato Court, Redwood City, California, manufactures these devices and sells them for \$14.95.

PORTABLE CAMPING UNIT SET UP IN FIVE MINUTES

Kar Kamp Manufacturing Co. of 11680 McBean St., El Monte, California, has introduced on the market a portable outdoor room that can be erected in five minutes. An all-aluminum car-top carrier provides carrying space for the camping unit with enough room left over for accessory camping equipment.

Kar Kamp is unrolled from the carrier and assembled into a completely enclosed 7½ by 10½-foot room. When set up, the rust-proof aluminum frame eliminates the conventional space-consuming center pole. All corners, doors and windows are equipped with rust-proof zippers. The canvas exterior is water-repellent, mildew-proof and flame-proof. A full size canvas floor covering is also furnished with the unit.

The Kar Kamp room permits direct access to the interior of the car, but the vehicle can be driven away without having to take down the room. Room unit weighs 88 pounds.

• • •

SCINTILLATOR METER GIVES URANIUM PERCENTAGES

Precision Radiation Instruments of 4223 West Jefferson Blvd., Los Angeles, is now manufacturing the Model 111B Scintillator which features a special meter which gives uranium percentages in ore at the discovery location. The 111B utilizes an extra large inch-and-a-half sodium iodide crystal and an eight-tube "Multi-Mu" circuit. The instrument can be used effectively from the air as well as on the ground. It weighs only seven-and-three-fourths pounds.

• • •

PORTABLE FILTER FOR FAMILY SWIMMING POOLS

Diaclear, Inc., Hamden, Connecticut, has placed on the market a portable filter for the family size swimming pool. It is a complete filter unit, mounted on wheels, which can be placed in operation in five minutes to filter pools containing up to 15,000 gallons (16x32x4 feet). Diaclear operates on the diatomic method of filtration and keeps the water sparkling and clean. It retails for \$250.00.

BOOKS of the SOUTHWEST

LEGEND OF PANCHO VILLA SUBJECT OF NEW BOOK

Perhaps no man stands as the personification of revolution in its every aspect as does Pancho Villa. His legend is described by Texas Western College English professor and Southwest author Haldeen Braddy in his new book, *Cock of the Walk*. Braddy makes no attempt to separate truth from fiction. To understand Villa and his place in the hearts of his friends and foes, we must completely digest the fiction which is even today being expanded as positive truth by dwellers on both sides of the border.

Villa has become a legend. He is the suppressed feudal serf suddenly and brutally turning the table on his former master. To the millions of peons who worshipped him, his every savage move was the move they secretly longed to make. If they could not be free in body at least Villa gave them a chance to be free in mind.

But, as is always the case, the brutal framework he erected in place of the previous order was as great a violation to society. Author Braddy repeatedly makes it very clear that in trying to sum up Villa's actions one cannot say something bad about him without saying something good, and likewise cannot say a good thing without adding something bad. His peon soldiers thrilled to his battle cry: *Maten los ricos! Kill the rich!* But they killed rich and poor alike.

Published by the University of New Mexico Press, Albuquerque. 174 pages. Four photographs of Villa. Source list. \$4.00.

NEW MEXICO'S ENCHANTMENT TOLD IN TEXT, ILLUSTRATIONS

New Mexico, Land of Enchantment, is a generously illustrated book which presents the major aspects of the state—its land, people, government, industries and schools. Authors E. B. Mann and Fred E. Harvey have compiled a storehouse of elementary information about New Mexico and the reader will find here everything worth knowing about the state, from the discovery of Folsom Man to the modern method of financing public education.

Outstanding are the nearly 300 photographs, illustrations and maps found in the book, which prove beyond a doubt that New Mexico is the Land of Enchantment.

Published by the Michigan State University Press, East Lansing; 295 pages; bibliography; illustrations, maps, drawings; \$5.00.

PIONEER TRAIL FOLLOWED ON MODERN HIGHWAYS

The Santa Fe Trail was at one time America's main street — "The Great Trail of Commerce" bridging the Mississippi and points East with the Golden West. Professional guides knew every inch of the route as well as the major and minor alternate paths. Landmarks and station names along the trail were household words. And yet, today, a scant 80-odd years after the trail gave way to the railroad, we find most of the original wagon ruts covered by Nature and forgotten by man.

The Santa Fe Trail by Margaret Long traces the trail from St. Louis to Santa Fe along major highways, city streets, county roads and farm paths. All known stage stations and landmarks are described in the book along with their proximities to present day highway points and information as to how the present day backtracking pioneer can best reach them. Included in the book are monument scripts.

Activities of local historical societies in relation to the preservation of such memorials to places, people and events are also noted by Dr. Long. Whenever possible, snatches of local history which, bit by bit, added up to the colorful drama of the Trail, are included.

The entire trip is logged by auto mileage.

Published by the W. H. Kistler Stationery Company, Denver. Maps, illustrations, appendix and index. 310 pages. \$10.

TALES OF AN OLD-TIMER

From a mining man who spent several years developing desert mineral deposits a half century ago comes a little book of reminiscences which will warm the hearts of old-timers who knew Tonopah and Goldfield in the days when the boom was on.

The author is Henry Curtis Morris, now of Washington, D.C., where he played important roles in the service of the Bureau of Mines during World War I.

In his book *Desert Gold and Total Prospecting*, he tells of the days when prospecting was done with burros, and Diamondfield Jack Davis and Death Valley Scotty were well known names in the Nevada mining camps.

Morris believes there is still rich mineral wealth in the earth for prospectors who are thorough enough or lucky enough to find it.

Published by the author. 60 pp. Historical photos. \$3.00.

NAVAJO STORY FOR PRIMARY YOUNGSTERS

Edith J. Agnew spent a good deal of research in the Navajo country before writing *The Gray Eyes Family*—certain to be enjoyed by children of primary grades. Her story is illustrated with black-and-white drawings by Jean Martinez and the type is large and clear for young eyes.

The Gray Eyes Family lived in Navajoland, at the bottom of Rock-That-Looks-Like-a-Man's Hat: father Hasteen, mother Denezbah, Tom, Mary, Peaches and the baby Sam. Tom wanted to go very much to the school in Utah, but he tended sheep at home and besides there wasn't any room in the school. How Mary helped him and how the whole family got their "name" papers is told. Trader Sam and the missionary lady enter into the story and the family takes a trip to Shiprock, "Rock-with-Wings" to see Tom, who got sick and went to the hospital. It's a delightful family, along with the pets: Dog-with-Spot-on-Tail and Dog-with-White-Nose, and the kittens that kept Peaches happy.

Published by Friendship Press. 127 pages. \$2.00.

CACTI IN COLOR . . .

Thirty-two lithographs in glowing color make *Rock Plants* an exquisite gift book for everyone who loves cacti. The originals were painted by Arlette Davids, whose flower paintings are world famous and who started her series of water colors at the Bagatelle Flower show in pre-war Paris. *Rock Plants* is a collection of her best, reproduced in splendid lithographs which retain all the freshness and spontaneity of her design and color. She includes cacti originating in Mexico, Texas, Brazil, Argentina, Honduras, Madagascar and Africa, painted in delightful simplicity of a single blossom or plant, and each plate may be framed separately.

With introduction by Henry de Montherlant, translated from the French by S. P. Skipwith. Published by the Hyperion Press, New York. 32 pages. \$1.95.

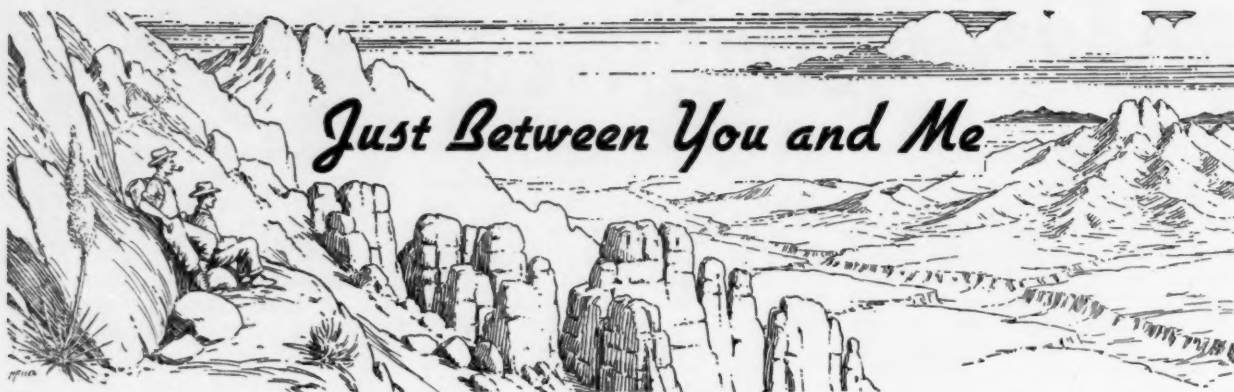
(Continued on page 47)

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By RANDALL HENDERSON

ONE OF MY recent visitors was Harry Goulding of the Monument Valley Trading Post near the Arizona-Utah state line. Harry, more than any other one person, deserves the credit for opening up passable trails across the sandy floor that surrounds the great monoliths which gave the Valley its name.

Harry shares the view of many other Southwesterners—that Monument Valley should be reserved as a National Monument. The procedure for bringing this about will not be simple, for the reason that the Valley is almost entirely within the Navajo Indian reservation.

It is an arid land, and if it were not for the payrolls brought into the valley occasionally by movie producers who use the Indians as extras, the Navajos would find it difficult to survive.

Goulding feels that the transfer of these lands to the jurisdiction of the Park Service without disturbing the hogans and flocks of sheep, as has been done in Canyon de Chelly National Monument, not only would be of great benefit to the Navajos, but would open up a fascinating new area for tourist travel. The Indians would have priority in the construction and maintenance work of the Monument, and visiting Americans would have the opportunity to become better acquainted with the problems of those nomad people. Crafts work could be encouraged and the result inevitably would be a higher standard of living for the Indians.

One of the first projects to be undertaken by the Park Service would be the construction of good roads to replace the chucks and ruts that now bar the way to all except the hardest of the motorists.

After all, the most interesting denizens of the desert are its people—the natives of this arid land. And the Navajos are the most colorful of all the Southwestern tribesmen. I share Harry Goulding's hope that sooner or later the Indian Bureau, the Park Service and the Navajo Tribal Council will be able to reach an agreement which will bring Monument Valley—and its people—within the jurisdiction of the National Park Service.

* * *

Most heartening is the news that California's Congressman Clair Engle, chairman of the House Interior Committee, has asked the Interior Department to withhold any further withdrawals of public lands for military reservations until the committee has an opportunity to investigate the Defense Department's need for additional lands.

It is good to know that someone in a position of authority finally has become aware of the obvious contest now going on between the admirals and the generals to see which can acquire dominion over the largest portions of the Southwest desert country.

Until recently, the Navy appeared to be winning the contest. But the latest news from New Mexico indicates that the generals have not been asleep. They have asked that 1000 square miles including some of the finest hunting areas in southern New Mexico be added to the Fort Bliss reservation.

At the same time the commanding officer made known that the area would be closed to all hunting except by military personnel from the Texas base. Civilians are to be excluded on the ground that the possible presence of dud shells would be hazardous.

I hope that sooner or later Congressman Engle's committee will have an opportunity to ask the army officers why unexploded shells would be a hazard to civilians, but not to military personnel.

Judging from newspaper reports from New Mexico the citizens of the state are not going to permit a thousand square miles of their land to be taken over as a private hunting reserve for the U. S. Army without a vigorous protest.

These huge and ever-expanding land grabs by the various defense agencies are a serious matter to the three million Americans who now make their homes and earn their livelihoods on the Great American Desert.

Since public hearings are seldom held, the only recourse you and I have is through our representatives in Congress—and I hope those who share my concern over the situation will make known to their congressmen their feeling in the matter.

* * *

This is late afternoon. The sun is just sinking behind the high ridge of the San Jacinto Mountains on the west. To the north, across the floor of Coachella Valley, the Little San Bernardino range is a fantastic pattern of high-lights and shadows—"shadow mountain" we call it.

Fortunate indeed are those who can be on the desert at this time of the day, for, while many of the beauties of the desert are hidden from those who travel only the paved highways, the late afternoon shadow design of the mountains—all desert mountains—is a picture that every motorist may enjoy.

The newcomer often looks at these arid-looking hills with disdain. "What beauty can you see in those barren slopes?" he asks. You and I, who love these mountains, find it hard to answer that question. For after all, the beauty on the horizon often is a reflection of beauty and understanding within. One has to see through and beyond the grim mask of the desert to discover its charm—and your vision and mine sometimes is dimmed by the pressure of the petty details of living and making a living. It is good to look up to the mountains. It is good to look up—period.

BOOKS

(Continued from page 45)

INDIAN INTEGRATION EFFORTS DESCRIBED BY MISSIONARY

For 27 years Earle F. Dexter has served as a director of religious work among Indian Americans in the Southwest. From this extensive experience he has drawn accounts and observations of the impact modern civilization is having upon Indian youths and how they, in turn, are reacting. This broad sketch of the Indian situation is presented in *Doors Toward the Sunrise*.

The problems of Indian integration are more social and economic than they are racial, Dexter believes. He expresses great hope that barriers that have grown between the two people over the years can be worn away by increased social contact and more genuine attempts at understanding. Education will result in better jobs for the Indians.

Doors Toward the Sunrise is not a textbook nor is it a sermon. The author presents real people he has known doing things and believing things that should inspire us all. The reader is introduced to the Indian as he is—an individual in search of firm cultural ground to replace the shaky and inadequate foundation he has inherited.

Published by the Friendship Press, New York. Drawings by Rafael Palacios. 116 pages, \$2.00.

STORY OF THE BIG BEND COUNTRY IN TEXAS

The Big Bend Country of Texas was truly one of the last western frontiers. Virginia Madison, author of *The Big Bend Country*, grew up a regular West Texan so her comprehensive story is authentic as only one who lived in and loved the country could have written it.

Its early days were crammed with the wild and lawless adventure of all of our western lands. Its long border with Mexico added complications of an international nature as well. Indians, Mexicans, renegades, cattlemen, sheepmen, miners—all played their part in the Big Bend story and Virginia Madison knew intimately many of the famous people of that region who could give her first hand facts about the vast and little known Big Bend.

After reading *The Big Bend Country*, one feels well acquainted with that huge, sprawling, little populated land, its history, its enormous potentialities, the colorful and reckless life of its scattered inhabitants. Besides the us-

ual search for gold and silver, you will read of the romance of its fabulous cinnabar mines.

Three chapters at the end of the book sum up in fascinating and concise fashion the "fur, feather and fang" population of the Big Bend, its place as a botanical wonderland, and last, the part which the comparatively new Big Bend National Park is playing in preserving a large section of the country which is to remain unspoiled for future generations to study and enjoy.

University of New Mexico Press, Albuquerque, New Mexico. 248 pp. Comprehensive bibliography and index. \$4.50.

CHURCH CAN AID INDIAN SEEKING NEW WAY OF LIFE

Dr. David M. Cory has been pastor of the Cuyler Presbyterian Church, Brooklyn, New York, for over 20 years. Among his most active parishioners are a large group of Mohawk Indians who have taken from the church a firm stepping stone on which to cross from the old to the new way of life. Dr. Cory knows well the Indians' problem of adjustment in the White Man's world and also the role of the church in aiding that adjustment. In his book, *Within Two Worlds*, he reports the progress being made by American, Alaskan and Canadian churches concerned with Indian integration.

The problem, as seen by Dr. Cory, is a vastly complex one. The Indian, caught between two worlds, is being forced from the old to the new. Before the reader can jump to the conclusion that this is all well and good, Dr. Cory points out that the Indian feels that the New World is lacking in many things—the old ways have the security of a leisurely, timeless pace, with ceremonials, family obligations and group commitments. The White Man's world means time clocks, low scale jobs, slum living, prejudice, language handicap and discrimination. What is owning a television set or second hand car compared to holding a secure and respected place in a society?

Churchmen must understand the problems of the Indians they are ministering—problems that vary from individual to individual and from tribe to tribe. The church must supply these Indians with a firm foundation of value and belief, Dr. Cory believes. He also thinks it would be a good thing if more effort were exerted to develop leadership among the Indians themselves.

Published by Friendship Press, 257 Fourth Avenue, New York 10, N. Y. 177 pages with notes, chronology of Indian history and reading list. Cloth cover \$2.00; paper, \$1.25.

STONE TOOLS SPANNING 14 CENTURIES DESCRIBED

The highly detailed and exacting record of stone artifacts taken from the Hopi Awatovi pueblo is found in Richard B. Woodbury's *Prehistoric Stone Implements of Northeastern Arizona*, the sixth report of the Peabody Museum-Harvard University Awatovi Expedition.

More than 8000 stone objects were uncovered at Awatovi giving scientists a direct link with 14 centuries of continuous Indian history. Not all 8000 objects receive individual treatment in the book, but the various general types are described, measurements given, exact discovery sites located, followed by a discussion on how the implements were made and used. The layman may find this method of presenting the fruits of discovery too tedious for his taste, but it is all a very necessary preliminary for archeological research.

Classification is made by usage which complicates matters somewhat for the Indian apparently had the same bad habit that most of us have: when in the midst of a job and in need of a tool, he usually picked the nearest one at hand, thus making hammers out of axes and drills out of arrowheads. This becomes further complicated when we remember that some stone tools had more than one legitimate use.

The author was in charge of stone and bone artifacts on the expedition. Published by Peabody Museum, Cambridge, Massachusetts. 240 pages, 19 tables, appendix, index, 28 collotypes and 13 illustrations. \$7.50.

NAVAJO PINYON RESOURCES ARE SUBJECT OF SURVEY

The University of Arizona has published the first report on its survey of natural resources of the Navajo-Hopi Indian reservation, under contract to the Bureau of Indian Affairs. The initial work deals with the pinyon resources of the two reservations.

Pinyon Resources was written by botanists Horace S. Haskell, now with the Museum of Northern Arizona, and Chester F. Deaver of Arizona State College and directed by Dr. George A. Kiersch, head of the survey project.

Copies of the university's study of pinyon resources and the forthcoming reports on mineral resources may be secured from the Director of Resources, Navajo Agency, Bureau of Indian Affairs, Window Rock, Arizona. 37 pages. Maps, tables, index.

Books reviewed on these pages are available at Desert Crafts Shop, Palm Desert. Add three percent sales tax on orders to be sent to California.

BOOKS FOR CHRISTMAS GIVING . . .

Here are a few selected titles suggested by the Desert Magazine staff as worthwhile gifts to friends who like to read and learn:

HISTORY AND LEGEND

H62 JOURNEY OF THE FLAME, Fierro Blanco. Reprint of the popular historical novel, acclaimed as the greatest collection of desert lore ever compiled. An amazing collection of fact and fiction about Baja California and the Southwest. 294 pp.\$3.75

H67 YUMA CROSSING, Douglas D. Martin. Tales of four centuries of history when the Yuma crossing was once the only safe ford of the Colorado River—of sea captains, Indians, missionaries, Indian scouts and many more. Illus.\$4.00

H41 LIEUTENANT EMORY REPORTS, Ross Calvin. Reprinted for the first time since 1848, is the much-quoted, seldom seen Notes of a Military Reconnaissance by W. H. Emory. This is the salty story of a young career-soldier. Maps, notes, biblio, 208 pp.\$4.50

H46 PAGEANT IN THE WILDERNESS, Herbert E. Bolton. The story of Father Escalante's trek into the Great Basin, 1776. A translation of the Escalante journal, which not only places the expedition in its proper historical setting, but depicts this trek as a great adventure. Biblio., index. Photos, two maps, 250 pp.\$5.00

D41 DEATH VALLEY IN '49, William Lewis Manly. Written in his own words, the classic of Death Valley crossing; the day-by-day amazing account of how Manly and his party survived innumerable hardships. Photos, map.\$6.50

H16 OLD BILL WILLIAMS, Mountain Man, Alpheus H. Favour. Tempestuous career of a peerless hunter, trapper, marksman, horesman, who became more Indian than white, accompanied first survey party to make Indian treaties for Santa Fe rights-of-way. Map, photos, index.\$3.00

PLANTS AND WILDLIFE

D45 THE LIVING DESERT, Walt Disney. Exciting and factual story of the teeming plant and animal life of our Western deserts. Based on the motion picture "The Living Desert." Excellent colored photographs, glossary. 124 pp.\$2.95

W31 THE VOICE OF THE DESERT, Joseph Wood Krutch. In which a Naturalist explores the rich, intriguing, unexpected variety of life on the Southwest desert. 223 pp.\$3.75

W94 WHAT KINDA CACTUS IZZAT? Reg. Manning. Humorous drawings, informative text make this an easy-to-read book for everyone interested in the "Who's Who" of the desert cacti life. 107 pp.\$2.25

W18 OUR DESERT NEIGHBORS, Edmund C. Jaeger. A fascinating book of a naturalist's experiences with the jackrabbit, the packrat, the coyote, the canyon wren, the sidewinder, and scores of birds and animals and reptiles of the Southwest Desert. Illus. Index, 239 pp.\$5.00

GEMS AND MINERALS

M34 FIELD GUIDE TO ROCKS AND MINERALS, Frederick H. Pough. Color illustrations. Textbook covering the whole field of minerals for both student and veteran mineralogist.\$3.75

M4 FIELD BOOK OF COMMON ROCKS AND MINERALS, F. B. Loomis. Nature Field Book series. For collecting, identification. 144 pages on minerals, 96 on rocks. Minerals in which color is important for identification are illustrated in color. Many photos, drawings. Geological time chart, biblio., index, 352 pp.\$4.50

M29 THE FIRST BOOK OF STONES, M. B. Cormack. For children. Makes stone collecting easy and exciting for beginners. Large type and plenty of simple illustrations. 90 pp., index.\$1.95

BOOKS FOR CHILDREN

AMERICAN INDIAN COLOR BOOKS, Eugene H. Bischoff. Read and Color—50c each

J20 Hopi & Zuni

J26 Indians of the Plains

J21 Navajo

J27 Famous Chiefs

J22 Pueblo

J28 Apache

Cut and Color—50c each

J29 Kachina Dolls

J30 Indian Dances

J24 LET'S GO TO THE DESERT, Harriet E. Huntington. Scientific facts about desert plants and animals written for children up to 9. Each story illustrated by full-page photograph. 88 pp.—44 photographs.\$2.75

J32 ADVENTURES IN CACTUS LAND, Betty B. Herndon. Experiences of animals, birds and reptiles of the desert with real names and life-like conversations. Ages 9-12. 169 pp., illustrated.\$3.00

J35 WIKI OF WALPI, T. K. Smith. Enchanting story of little Wiki who lived near a Navajo village; looked for herbs and became the Little Big Medicine Man of his people. Lovely color illustration. Ages 6-9. 44 pp.\$1.50

J36 LITTLE WOLF THE RAIN DANCER, T. Shannon. Little Wolf lived in a sun-drenched pueblo in northwestern New Mexico. The story of how he was chosen to dance in the age-old Rain Dance of his tribe. Clear print, colorful drawings. Ages 5-8. 48 pp.\$2.75

J38 SUN DANCE and the Great Spirit. For ages 8 to 11. Sun Dance was a young Ute boy, who liked to hunt, and has an exciting time with an all-black skunk and an old mountain lion. Excellent drawings by L. F. Bjorklund. 128 pp.\$2.50

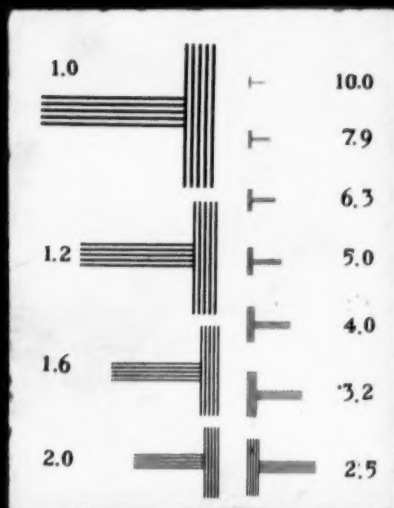
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INSTRUCTIONS Resolution is expressed in terms of the lines per millimeter recorded by a particular film under specified conditions. Numerals in chart indicate the number of lines per millimeter in adjacent "T-shaped" groupings.

In microfilming, it is necessary to determine the reduction ratio and multiply the number of lines in the chart by this value to find the number of lines recorded by the film. As an aid in determining the reduction ratio, the line above is 100 millimeters in length. Measuring this line in the film image and dividing the length into 100 gives the reduction ratio. Example: the line is 20 mm. long in the film image, and $100/20 = 5$.

Examine "T-shaped" line groupings in the film with microscope, and note the number adjacent to finest lines recorded sharply and distinctly. Multiply this number by the reduction factor to obtain resolving power in lines per millimeter. Example: 7.9 group of lines is clearly recorded while lines in the 10.0 group are not distinctly separated. Reduction ratio is 5, and $7.9 \times 5 = 39.5$ lines per millimeter recorded satisfactorily. 10.0 $\times 5 = 50$ lines per millimeter which are not recorded satisfactorily. Under the particular conditions, maximum resolution is between 39.5 and 50 lines per millimeter.

Resolution, as measured on the film, is a test of the entire photographic system, including lens, exposure, processing, and other factors. These rarely utilize maximum resolution of the film. Vibrations during exposure, lack of critical focus, and exposures yielding very dense negatives are to be avoided.